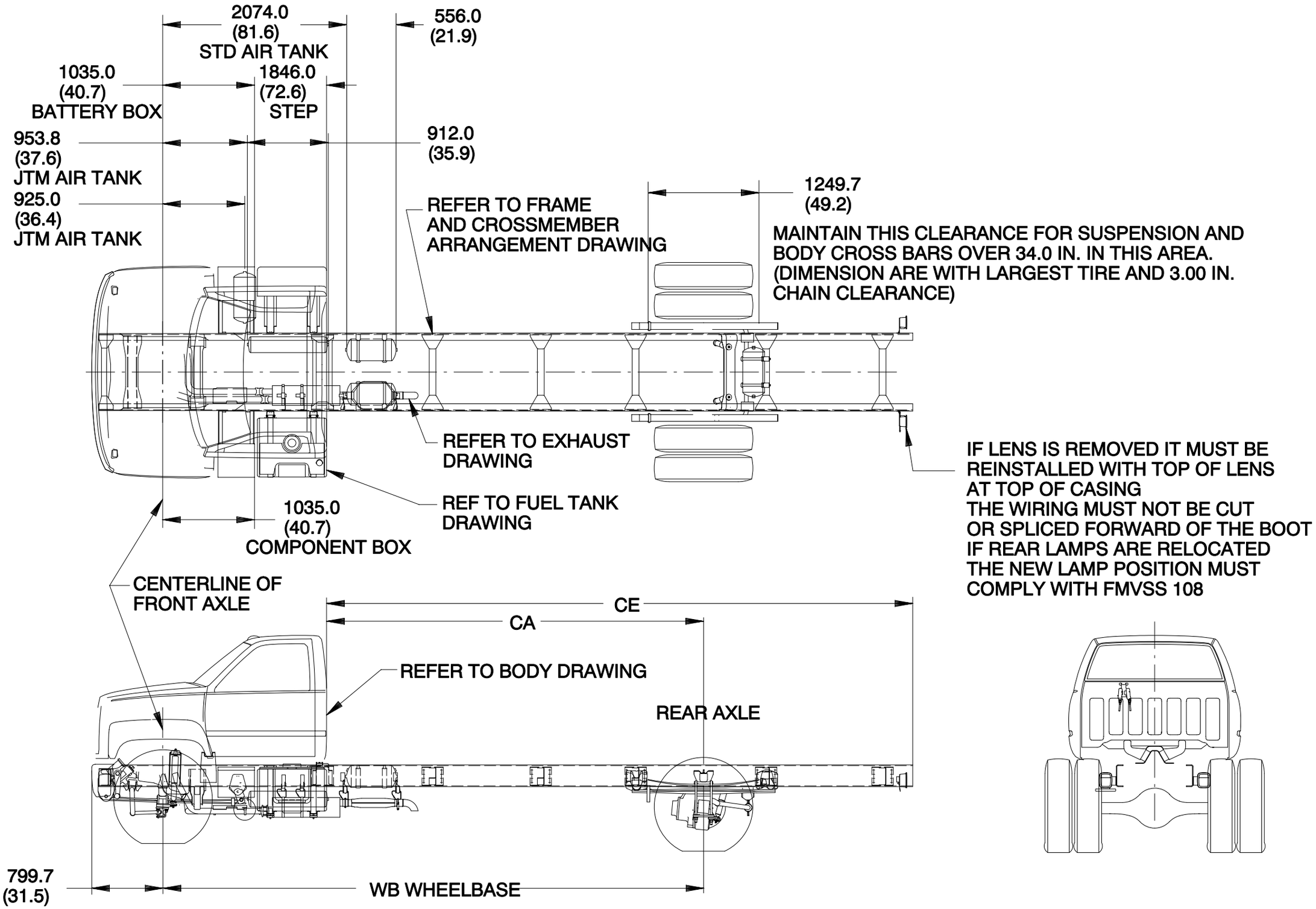
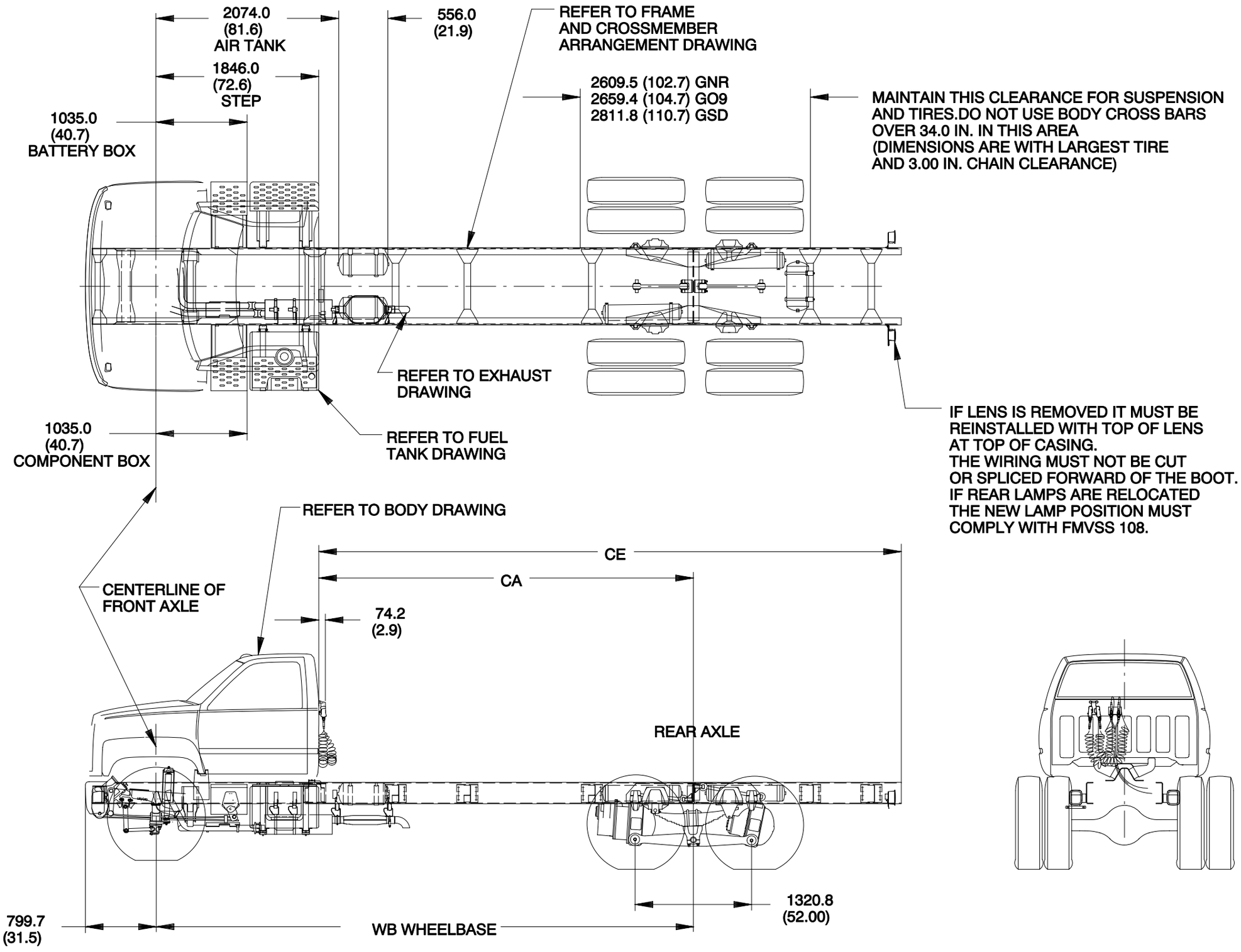
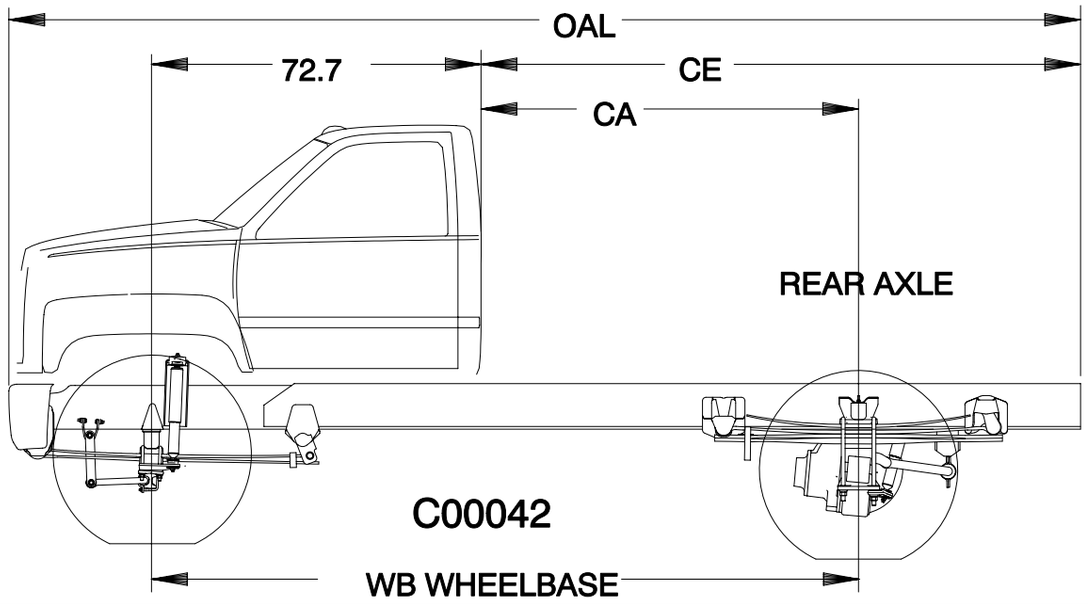
C6/7H042 General Arrangement



C7H064 General Arrangement



C6/7H042 Body Payload Weight Distribution



NOTES:
* PERCENTAGES ALLOWED FOR 3" CB (CAB TO BODY CLEARANCE) AND ARE BASED ON EVEN DISTRIBUTION OF WEIGHT (FORMULA: (CA–CB–1/2BL)/WB CGA OR % FRONT AXLE)

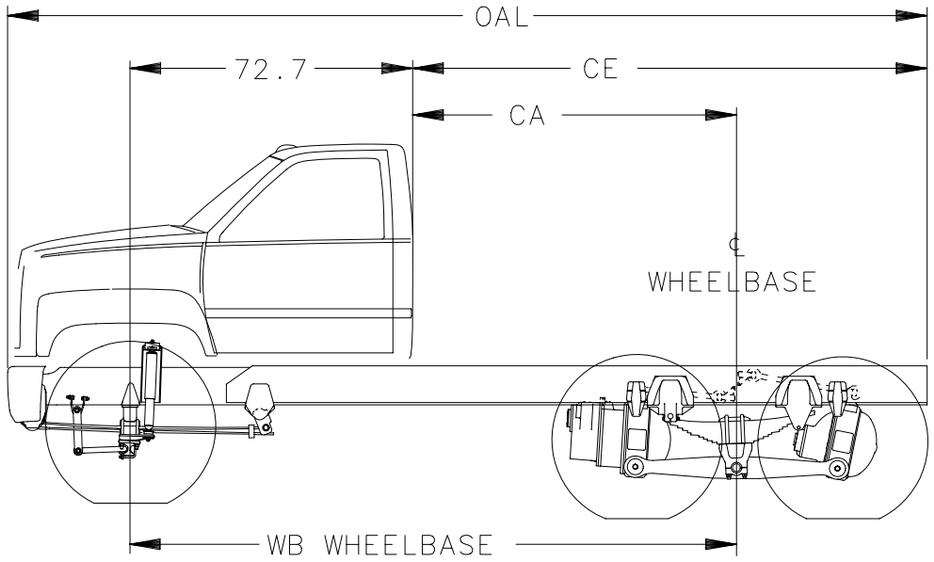
** EFFECTIVE LENGTH IN WHICH FRONT AXLE LOAD IS 6% OR LESS IS NORMALLY POOR DISTRIBUTION

C7H042 ONLY
C6H042 ONLY

C6/C7HO42 BODY–PAYLOAD WEIGHT DISTRIBUTION (% FRONT / % REAR) *

DIMENSIONS (IN)				** BODY LENGTHS (FT)													
WHEELBASE	CA	CE	OAL	8	9	10	12	14	15	16	17	18	19	20	22	24	26
FPJ/133	60.0	111.6	212.7	7/93	2/98												
FQX/145	72.0	123.6	224.7	14/86	10/90	6/94											
EG4/157	84.0	135.6	236.7	21/79	17/83	13/87	5/95										
FNV/175	102.0	171.2	272.4		26/74	22/78	15/85	8/92	5/95								
EK1/181	108.0	177.2	278.4			25/75	18/82	12/88	8/92	5/95							
FWN/187	114.0	183.2	284.4				20/80	14/86	11/89	8/92	4/96						
EL4/193	120.0	189.2	290.4				23/77	17/83	13/87	11/89	7/93	5/95					
EL8/197	124.0	217.2	318.4					19/81	16/84	13/87	10/90	7/93	4/96				
ED3/211	138.0	231.2	332.4						21/79	19/81	16/84	13/87	10/90	7/93			
EQ4/229	156.0	249.2	350.4							25/75	22/88	20/80	17/83	14/86	9/91	4/96	
ER7/241	168.0	261.2	362.4								26/74	24/76	21/79	19/81	14/86	9/81	4/96
ES2/245	172.0	265.2	366.4									25/75	22/78	20/80	15/85	10/90	5/95
ET7/259	186.0	279.2	380.4										27/73	24/76	20/80	15/85	10/90

C7H064 Body Payload Weight Distribution



C7H064

NOTES:

* PERCENTAGES ALLOWED FOR 3" CB (CAB TO BODY CLEARANCE) AND ARE BASED ON EVEN DISTRIBUTION OF WEIGHT (FORMULA: CA-CB-1/2BL/WB CGA OR % FRONT AXLE)

** EFFECTIVE LENGTH IN WHICH FRONT AXLE LOAD IS 6% OR LESS IS NORMALLY POOR DISTRIBUTION

C7H064 BODY-PAYLOAD WEIGHT DISTRIBUTION (% FRONT / % REAR) *

DIMENSIONS (IN)				** BODY LENGTHS (FT)														
WHEELBASE	CA	CE	OAL	11	12	13	14	15	16	17	18	19	20	21	22	23	24	26
EG3/156	83.3	148.8	256.4	9/91	5/95													
EJ3/174	101.3	170.1	274.4		15/85	12/88	8/92	5/95										
EJ9/180	107.3	188.1	292.4		18/82	15/85	11/89	8/92	5/95									
EK1/181	108.3	188.1	289.3		18/82	15/85	11/89	8/92	5/95									
EG8/186	113.3	188.1	289.3			17/83	14/86	11/89	8/92	4/96								
EL3/192	119.3	188.1	292.4				17/83	14/86	11/89	7/93	4/96							
EL7/196	123.3	229.1	333.4				18/82	15/85	12/88	9/91	6/94							
FQD/198	125.3	229.1	333.4				19/81	16/84	13/87	10/90	8/92	4/96						
EM2/200	127.3	229.1	333.4					18/82	15/85	12/88	9/91	6/94						
FPU/209	136.3	229.1	333.4						18/82	15/85	12/88	9/91	6/94	3/97				
EN9/216	143.3	248.1	352.4						21/79	18/82	15/85	12/88	9/91	4/96				
EP6/222	149.3	248.1	349.3							20/80	17/83	14/86	12/88	9/91				
EQ3/228	155.3	248.1	352.4									17/83	14/86	12/88	9/91	6/94	4/96	
FRP/235	162.3	260.1	364.4									19/81	17/83	14/86	12/88	9/91	6/94	
ER6/240	167.3	260.1	364.4									21/79	18/82	16/84	13/87	11/89	8/92	
ES4/247	174.3	260.1	364.4									23/77	21/79	18/82	16/84	14/86	11/89	6/94
ET9/261	188.3	281.1	385.4										25/75	23/77	20/80	18/82	16/84	11/89

C6/7H042 GCW Rating Limits

Maximum Approved GCW for Engines

RPO	Engine	Maximum GCW Lbs.
LP4/L21	7.4L Gasoline	GCW May be limited by performance restrictions based on transmission, axle, and vehicle configuration
LXO	CAT 3116 Diesel	
LG5	CAT 3126B Diesel	

Maximum Approved GCW for Axles

RPO	Rear Axle Single	1 = Single Speed 2 = Two Speed	Maximum GCW Lbs.
H14	Rockwell RS-23-160 23,000	1	100,000
HPP	Eaton 21060S 21,000	1	60,000
H15	Eaton 21060T 21,000	2	60,000
HPQ	Eaton 23080S 23,00	1	80,000
H20	Eaton 23080T 23,000	2	80,000
H10	Eaton 15040S 15,000	1	40,000
H11	Eaton 19050S 19,000	1	50,000
H17	Eaton 19050T 19,000	2	50,000
HNA	Eaton 23105S 23,000	1	105,000
HNG	Eaton 23431S 23,000	1	85,000
HQR	Rockwell RS-22160 22,000	1	100,000
HPF	Eaton 22080S 22,000	1	80,000
HPG	Eaton 22060S 22,000	1	60,000
HPH	Eaton 22060T 22,000	2	60,000
HPA	Eaton 26105S 26,000	1	105,000
HPB	Eaton 30105S 30,000	1	105,000
HVQ	Eaton 26080P 26,000	1	80,000
HWH	Eaton 23080P 23,000	1	80,000
HPN	Eaton 21060D 21,000	1	60,000
HPK	Eaton 19060S 19,000	1	60,000
HXC	Eaton 19060S 16,900	1	60,000
HPM	Eaton 19056T 19,000	2	60,000
HPL	Eaton 19060D 19,000	1	60,000
HZT	Eaton 19050T 17,850	2	60,000
GJ4	Eaton 26080T 26,000	2	80,000

Contact factory for data on engines and transmissions not listed.

Maximum Approved GCW for Transmissions (Air Brake Models Only)

RPO	Trans.	Maximum GCW Lbs.	RPO	Trans.	Maximum GCW Lbs.
ME3/ME4	MT643D/G	73,280	MSC	FS4205B	45,000
ME5/ME6	MT653DR/DG	73,280	MSG	FS4205A	45,000
MF1	AT545	30,000	MTH	RT7608LL	80,000
MKO	FS6305A	74,000	MTP	MD3560P	80,000
MLO	FS6305B	74,000	MUT	RT6609	74,000
MMO	FS5306	45,000	MWK	RT8609	80,000
MNK	MD3060P	80,000	MWO	FS6306	60,000
MNZ	MD3560P	80,000	MK8	FS6406	80,000
MPU	FS5205A	45,000	MT9	AT542	22,050
MNC	FS5205B	45,000	MW4	FS8206A	80,000
MP8	MD3060P	80,000	MK9	ES066-7B	60,000

Maximum Approved GCW for Transmissions (Hydraulic Brake Models Only)

RPO	Transmission	Maximum GCW Lbs.
MF1	AT545	30,000
MW3/ME4	MT643D/G	34,000
ME6	MT653DG	34,000
MKO	FS6305A	34,000
MLO	FS6305B	34,000
MMO	FS5306	34,000
MPU	FS5205A	38,000[1)]
MNC	FS5205B	45,000
MSC	FS5205B	30,000
MSG	FS4205A	30,000
MT9	AT542	22,050
MWO	FS6306	34,000

1) 34,000 with diesel engines

C7H064 GCW Rating Limits

Maximum Approved GCW for Engines

RPO	Engine	Maximum GCW Lbs.
LP4/L21	7.4L Gasoline	GCW May be limited by performance restrictions based on transmission, axle, and vehicle configuration
LXO	CAT 3116 Diesel	
LG5	CAT 3126B Diesel	

Maximum Approved GCW for Axles

RPO	Rear Axle Single	1 = Single Speed 2 = Two Speed	Maximum GCW Lbs.	Maximum GVW Lbs.
HPE	Eaton DS404 40,000	1	110,000	
HPD	Eaton DS454P 45,000 w/RQ2	1		70,000
HPI	Eaton DS344 34,000	1	100,000	
HWU	Eaton DT402P 40,000	2	110,000	
HPJ	Eaton DS344	1	110,000	

Contact factory for data on engines and transmissions not listed.

Maximum Approved GCW for Transmissions (Air Brake Models Only)

RPO	Transmission	Maximum GCW Lbs.
ME3/ME4	MT643D/G	73,280
ME5/ME6	MT653DR/DG	73,280
MKO	FS6305A	74,000
MLO	FS6305B	74,000
MMO	FS5306	45,000
MNK	MD3060P	80,000
MNZ	MD3560P	80,000
MPU	FS5205A	45,000
MP8	MD3060P	80,000
MSC	FS4205B	45,000
MTH	RT7608LL	80,000
MTP	MD3560P	80,000
MUT	RT6609	74,000
MWK	RT8609	80,000
MWO	FS6306	60,000
MK8	ES52-7B	45,000
MK9	ES066-7B	60,000
MNC	FS5205B	45,000
MW4	FS8206A	80,000

Center of Gravity Calculations

A. Center of Gravity (CG) Definition and Discussion

Vertical center of gravity (CG) is a criteria used to evaluate the weight transfer of a vehicle. In simple terms, the center of gravity (CG) of an object is a straight line which divides the object's weight, half above the line and half below the line. Obviously, the higher the load is stacked, the higher its CG will be.

For our discussion, we must define two terms:

1. Vehicle "Maximum Vertical CG" is the allowable center of gravity which the vehicle is designed to accommodate.
2. "Actual CG" is the combined center of gravity for the chassis, body and payload required.

The Maximum Vertical CG of the vehicle is the maximum CG height which can be utilized for the completed vehicle, including payload. For Tandem rear axle vehicles, this is a maximum of 75 in. from the ground and for Single rear axles a 70 in. maximum from the ground. For all vehicles, the wheelbase to CG height ratio is 0.45. For your convenience, the maximum vertical CG of a vehicle is printed in the following locations:

1. On your invoice.
2. On the Incomplete Vehicle Document (IVD) cover label.

NOTE: If the actual CG exceeds the 75 in. Tandem axle model or 70 in. Single axle model, please contact the Sales Engineering Department for assistance.

If the vehicle ordered is changed after the order confirmation is received, maximum vertical CG may be affected. In all cases, the CG imprinted on the IVD is the maximum vertical CG.

B. Actual CG Calculation: Chassis, Body and Payload

Once the maximum vertical CG is known, it is a relatively simple matter to determine if a particular body and payload will stay within the CG criteria.

In order to determine the actual CG of the chassis, body and payload, each component's CG must be known. The chassis CG for each model is at the top of the unladen frame rail. This figure is conservative, so variances due to optional suspensions, rear axles and tires need not be taken into account. The firm supplying the body will be able to provide the CG dimension of his body, measured from the top of the frame rail. The customer, in conjunction with the Body Builder, can discuss the loading characteristics of the payload and determine the CG of the payload itself.

Since all CG heights must be measured from the ground, it is necessary to add the loaded frame height to any CG figure measured from the top of the rail.

Once the CG of the chassis, body and payload are known, the combination actual CG is determined by the following formula:

For calculation purposes, the vehicle should be loaded to rated GVWR (if possible). If the CG obtained by the following formula is lower than the maximum vertical CG at GVWR, the vehicle will meet the requirements. If the actual CG at GVWR is higher than the maximum, the vehicle is unsatisfactory as specified and some change must be made before ordering the trucks. Changes which affect the maximum vertical CG of the truck are GVWR and wheelbase.

	(Weight x CG)	. . .	Chassis
+	(Weight x CG)	. . .	Body
+	(Weight x CG)	. . .	Payload
=	Total		Chassis + Body + Payload
÷	(Weight)		GVWR
=	Total		Actual CG Height

Let's now look at a number of examples which will demonstrate the proper method of checking orders. For our first example, let's use a C7H042 with a van box to haul assorted groceries.

Recall that in order to figure the actual CG of the completed vehicle we need to know the weight and CG of the chassis, the body and the payload. The chassis was found to weigh 7400 lbs after all options had been added, and the CG (unloaded from weight) was 37.35 in.. A Van box that is 14.5 feet would give perfect weight distribution, and according to the body manufacturer, the Van body weighs 2000 lbs. and has a CG of 28 in. above the frame or 65.35 in. from the ground. When fully loaded, the payload would weigh 18,100 lbs. and have a CG of 44.3 from the top of the frame rail, 81.65 in. from the ground. Remember that the manner in which the load is distributed in the body must be obtained from the user, so as to properly determine the payload CG.

Taking the three major components into consideration, we are now ready to determine the actual CG. The numbers are as follows:

	Weight	CG
Chassis	7400 lbs.	37.35 in.
Body	2000 lbs.	65.35 in.
Payload	18,100 lbs.	81.65 in.

The equation now looks like this:

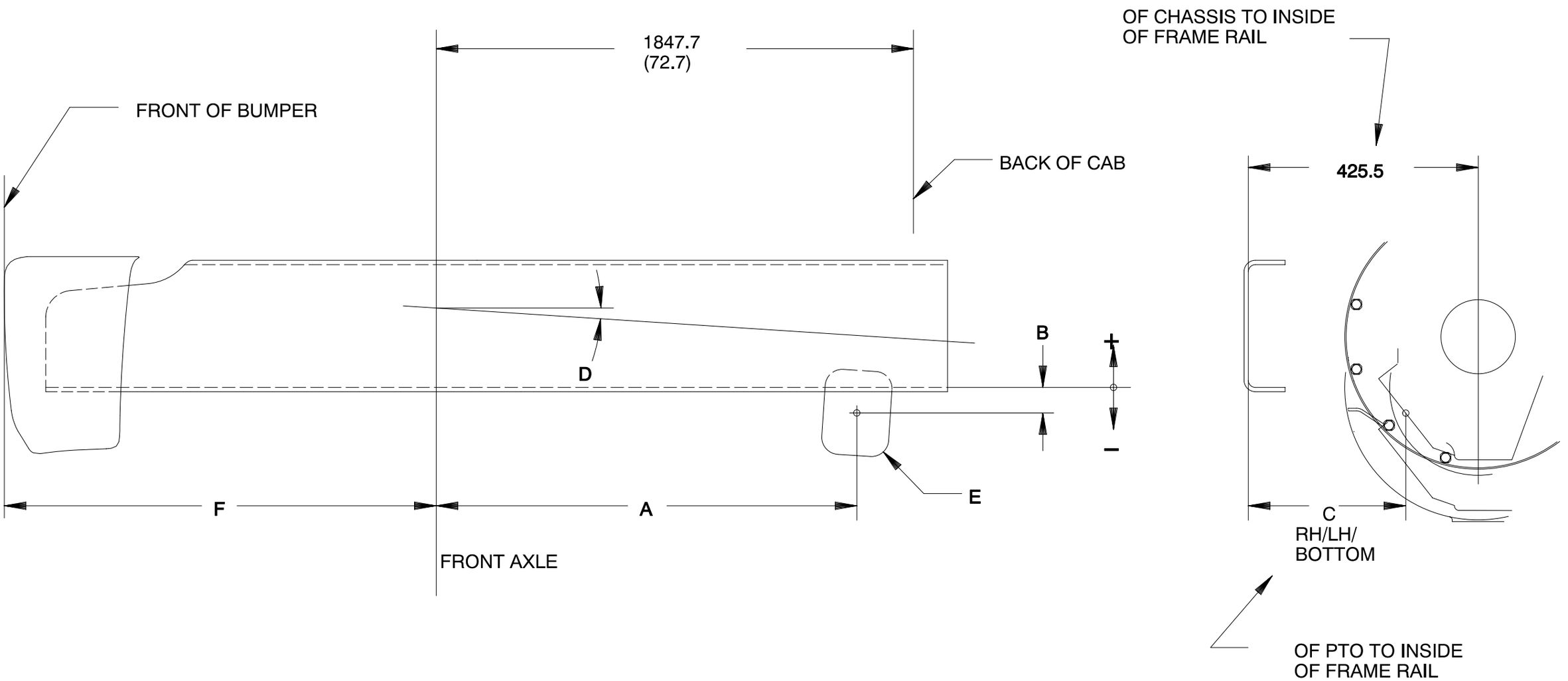
	(7400 x 37.35) .	Chassis
+	(2000 x 65.35) .	Body
+	(18,100 x 81.65) .	Payload
=	Total	Chassis + Body + Payload
÷	(Weight)	GVWR
=	Total	Actual CG Height

It was shown that this model has a maximum vertical CG of 70 in.. The actual CG was found to be 68.54 in., a figure lower than the 70 in. allowed; therefore, the body and payload combination is acceptable.

Allison MD Series Electronic Automatic Transmissions

This data is not available at time of publication.

C6/7H000 Transmission, Power Take Off Locations



PTO INSTALLATION NOTICE

EATON/FULLER MANUAL TRANSMISSIONS HAVE BEEN FACTORY FILLED WITH SYNTHETIC GEAR LUBE.

WHEN THESE TRANSMISSION ARE DRAINED FOR PTO INSTALLATION, THEY MUST BE REFILLED WITH SYNTHETIC GEAR LUBE, GM PART NUMBER 12345724 OR ROAD RANGER CD50 SYNTHETIC GEAR LUBE

EXPLANATION OF LETTERED DIMENSIONS

A= OF FRONT AXLE TO OF PTO OPENING
B= BOTTOM INSIDE OF FRAME RAIL TO OF PTO OPENING
C= INSIDE OF FRAME RAIL TO OF PTO OPENING
D= DRIVELINE ANGLE
E= POWER TAKE–OFF MOUNTING (SAE J704)
F= FRT OF BUMPER TO OF FRONT AXLE
799.7 WITH PAINTED (VB5)/CHROME (V46) BUMPER
830.1 WITH CONSTRUCTION (X62) BUMPER
1320.3 WITH SWEPT BACK (VQB) BUMPER

C6/7H000 Transmission, Power Take Off Locations

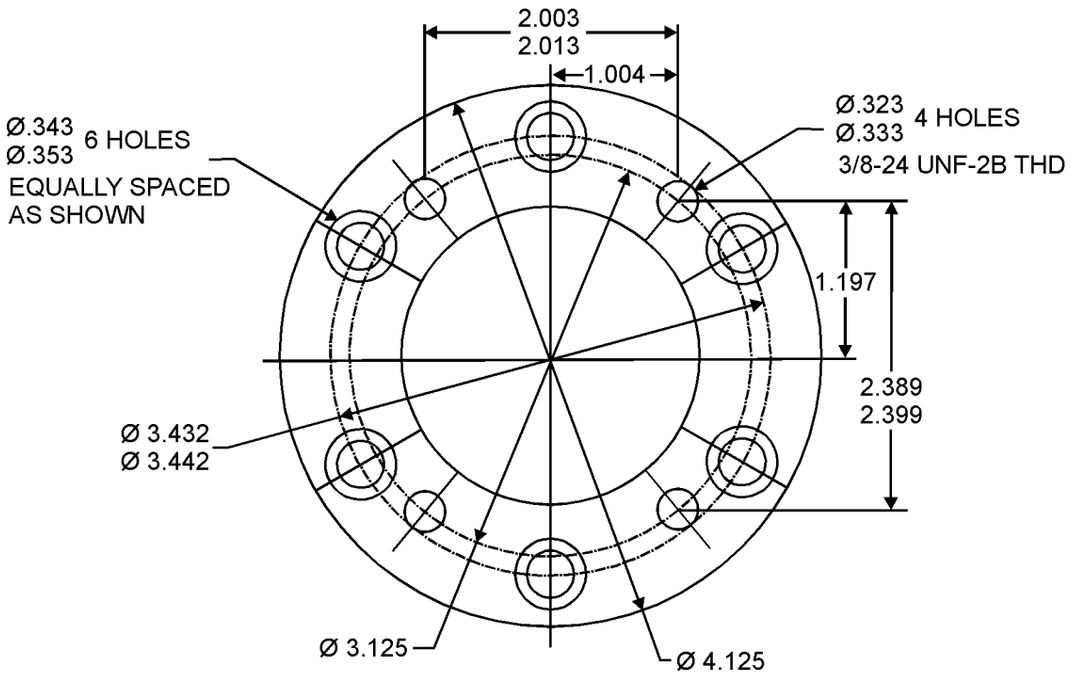
Engine	Model	Transmission	Location	A	B	C	D	E
LP4 7.4L 454	C6H042	Allison AT542 (MT9)	LH	—	—	—	—	—
			RH	597.2	+108.9	278.5	3.75	6 Bolt
	C6/C7H042	Fuller FS4205A/B (MSC/MSG)	LH	705.0	–48.0	336.1	3.75	6 Bolt
			RH	705.0	–48.0	336.1	3.75	6 Bolt
		Allison AT545 (MFI)	LH	—	—	—	—	—
			RH	597.2	+108.9	278.5	3.75	6 Bolt
	C7H042	Fuller FS5306A (MMO)	LH	712.4	–80.8	322.0	3.75	6 Bolt
			RH	712.4	–80.8	322.0	3.75	6 Bolt
		Allison MT643G/MT653DRG (ME4/ME6)	LH	—	—	—	—	—
			RH	678.3	+103.5	262.3	3.75	6 Bolt
L21 7.4L 454	C6H042	Allison AT542 (MT9)	LH	—	—	—	—	—
			RH	597.2	+108.9	278.9	3.75	6 Bolt
	C6/C7H042	Allison AT545 (MF1)	LH	—	—	—	—	—
			RH	597.2	+108.9	278.9	3.75	6 Bolt
	C6/C7H042/64	Fuller FS4205B (MSC)	LH	705.0	–48.0	336.1	3.75	6 Bolt
			RH	705.0	–48.0	336.1	3.75	6 Bolt
		Fuller FS5205A (MPU)	LH	779.0	–46.0	291.5	3.75	6 Bolt
			RH	778.5	–54.1	334.4	3.75	6 Bolt
		Fuller FS5306A (MMO)	LH	712.4	–80.8	322.8	3.75	6 Bolt
			RH	712.4	–80.8	322.8	3.75	6 Bolt
	C7H042	Fuller FS5205A (MSG)	LH	705.0	–48.0	336.1	3.75	6 Bolt
			RH	705.0	–48.0	336.1	3.75	6 Bolt
	C7H042/64	Allison MT643G/MT653DGR (ME4/ME6)	LH	—	—	—	—	—
			RH	678.3	+103.5	262.3	3.75	6 Bolt
		Fuller FS5205B (MNC)	LH	779.0	–46.0	291.5	3.75	6 Bolt
			RH	778.5	–54.1	334.4	3.75	6 Bolt

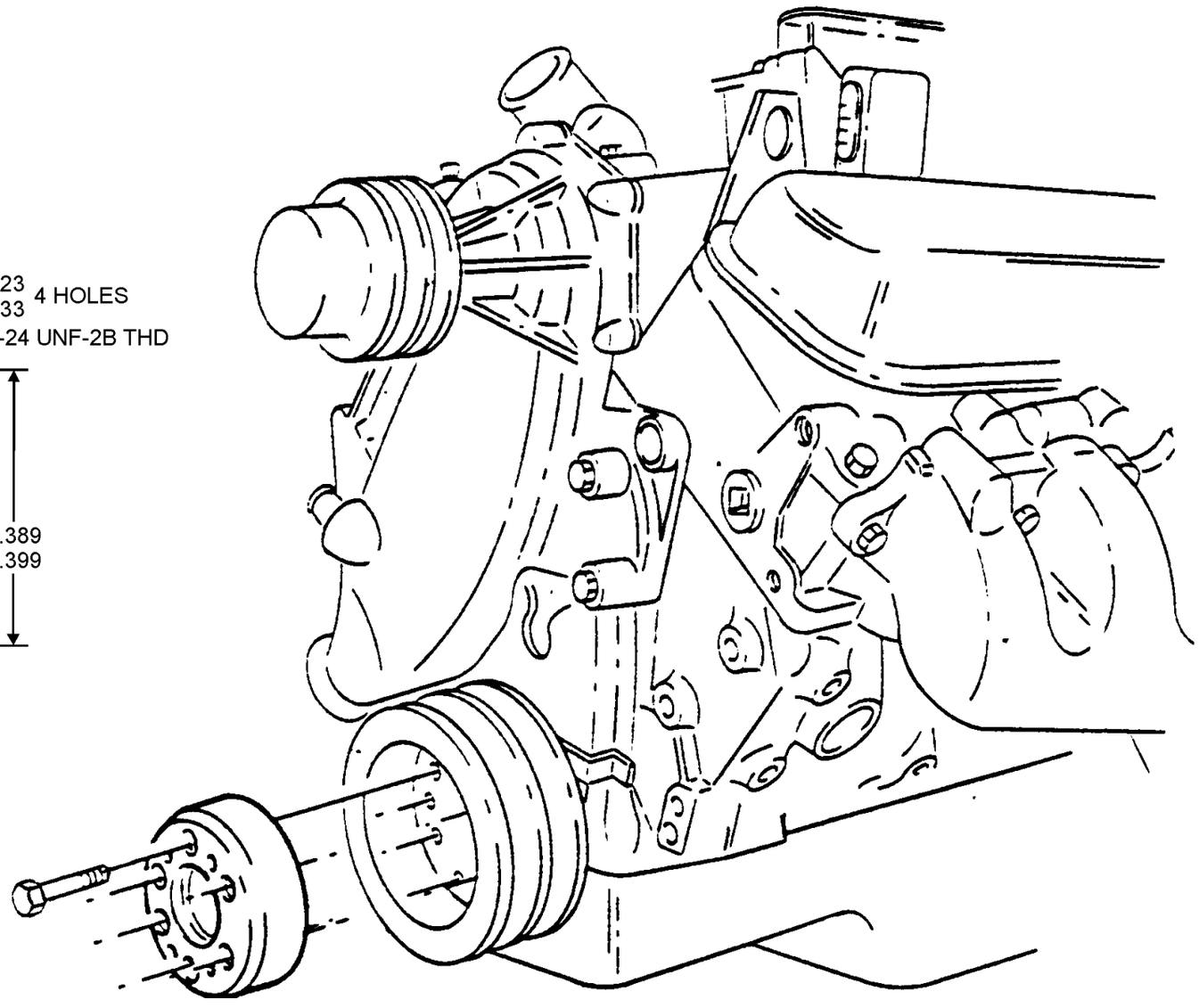
MEDIUM DUTY C SERIES

Engine	Model	Transmission	Location	A	B	C	D	E
LXO CAT 3116	C6H042	Allison AT542 (MT9)	LH	—	—	—	—	—
			RH	879.4	+68.5	278.5	4	6 Bolt
	C6/C7H042	Fuller FS4205A/B (MSC/MSG)	LH	916.5	–84.1	336.1	4	6 Bolt
			RH	916.5	–84.1	336.1	4	6 Bolt
		Allison AT545 (MF1)	LH	—	—	—	—	—
			RH	879.4	+68.5	278.5	4	6 Bolt
		Fuller FS5306A (MMO)	LH	922.6	–123.0	322.0	4	6 Bolt
			RH	922.6	–123.0	322.0	4	6 Bolt
		Fuller FS5205A/B (MPU/MNC)	LH	990.0	–82.2	291.5	4	6 Bolt
			RH	989.4	–90.3	334.4	4	6 Bolt
	C6/C7H042/64	Fuller FS6305A/B (MKO/MLO)	LH	970.4	–121.1	323.1	4	6 Bolt
			RH	970.4	–121.1	323.1	4	6 Bolt
		Fuller FS6306A (MWO)	LH	970.4	–121.1	323.1	4	6 Bolt
			RH	970.4	–121.1	323.1	4	6 Bolt
		Allison MT643D/MT653DRD (ME3/ME5)	LH	—	—	—	—	—
			RH	935.1	+64.6	262.4	4	6 Bolt
		Allison MD3060P (MP8/MNK)	LH	843.9	+49.6	273.7	4	10 Bolt
			RH	844.2	+54.7	277.1	4	10 Bolt
	C7H042/64	Allison MT3560P (MNZ/MTP)	LH	843.9	+49.6	273.7	4	10 Bolt
			RH	844.2	+54.7	277.1	4	10 Bolt
		Fuller RT6609 (MUT)	Bottom	974.8	—	425.5	4	8 Bolt
			RH	974.8	+14.5	268.6	4	6 Bolt
		Spicer ES066-7B (MK9)	LH	1020.7	–112.0	327.6	4	6 Bolt
			RH	1020.7	–112.0	327.6	4	6 Bolt
	C7H042	Spicer ES52-7B (MK8)	LH	1020.7	–112.0	327.6	4	6 Bolt
			RH	1020.7	–112.0	327.6	4	6 Bolt
LG5 CAT 3126B	C6H042	Allison AT542 (MT9)	LH	—	—	—	—	—
			RH	879.4	+68.5	278.5	4	6 Bolt

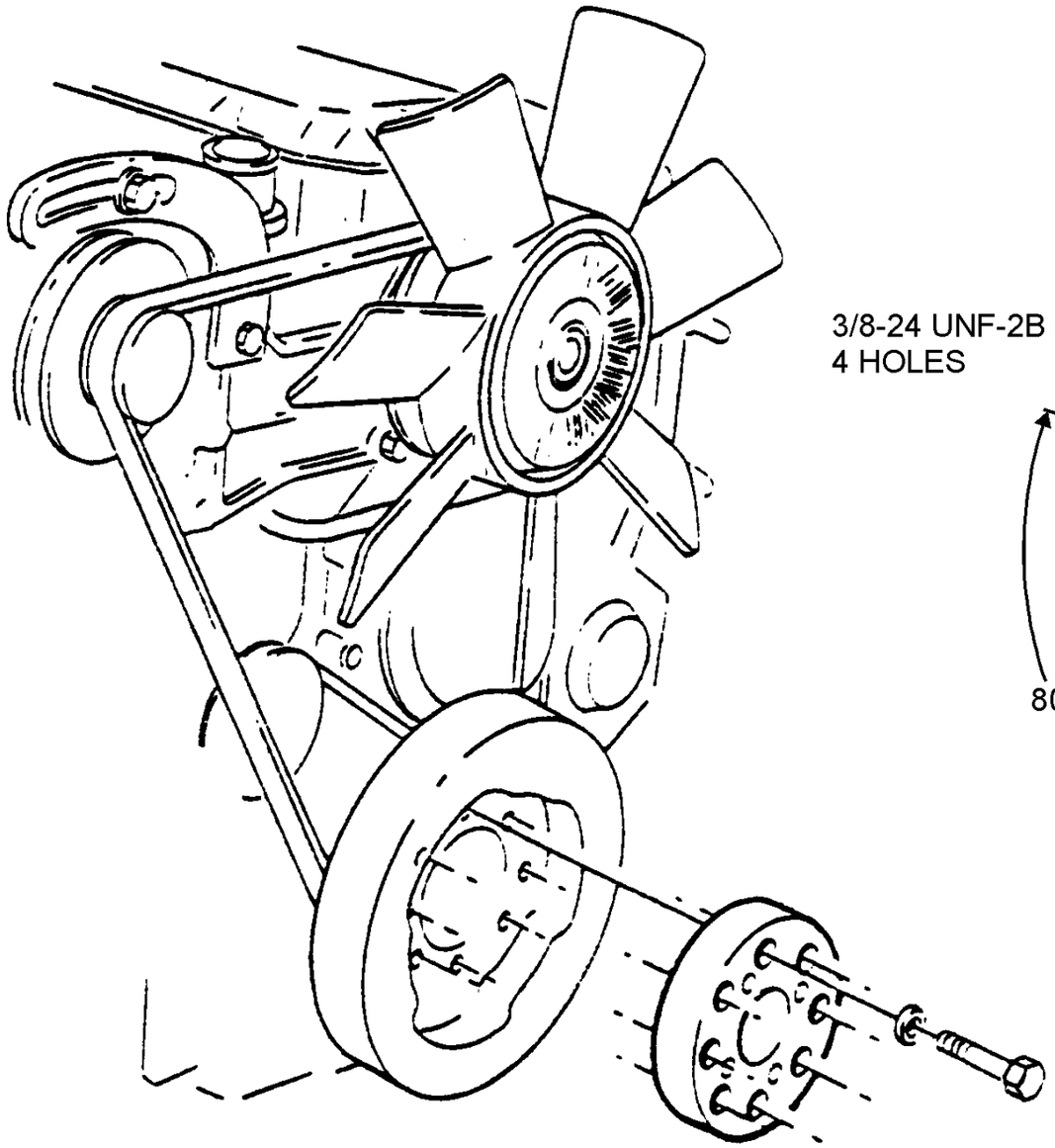
Engine	Model	Transmission	Location	A	B	C	D	E
LG5 CAT 3126B	C6/C7H042	Fuller FS4205A/B (MSC/MSG)	LH	916.5	–84.1	336.1	4	6 Bolt
			RH	916.5	–84.1	336.1	4	6 Bolt
		Allison AT545 (MF1)	LH	—	—	—	—	—
			RH	879.4	+68.5	278.5	4	6 Bolt
		Fuller FS5306A (MMO)	LH	922.6	–123.0	322.0	4	6 Bolt
			RH	922.6	–123.0	322.0	4	6 Bolt
		Fuller FS5205A (MPU)	LH	990.0	–82.2	291.5	4	6 Bolt
			RH	989.4	–90.3	334.4	4	6 Bolt
		Spicer ES52-7B (MK8)	LH	1020.7	–112.0	327.6	4	6 Bolt
			RH	1020.7	–112.0	327.6	4	6 Bolt
	C6/C7H042/64	Fuller FS5205B (MNC)	LH	990.0	–82.2	291.5	4	6 Bolt
			RH	989.4	–90.3	334.4	4	6 Bolt
		Fuller FS6305A (MKO)	LH	970.4	–121.1	323.1	4	6 Bolt
			RH	970.4	–121.1	323.1	4	6 Bolt
		Fuller FS6306A (MWO)	LH	970.4	–121.1	323.1	4	6 Bolt
			RH	970.4	–121.1	323.1	4	6 Bolt
		Allison MT643D/MT653DRD (ME3/ME5)	LH	—	—	—	—	—
			RH	935.1	+64.6	262.4	4	6 Bolt
		Allison MD3060P (MP8/MNK)	LH	843.9	+49.6	273.7	4	10 Bolt
			RH	844.2	+54.7	277.1	4	10 Bolt
		Spicer ES066-7B (MK9)	LH	1020.7	–112.0	327.6	4	6 Bolt
			RH	1020.7	–112.0	327.6	4	6 Bolt
	C7H042/64	Fuller FS6305B (MLO)	LH	970.4	–121.1	323.1	4	6 Bolt
			RH	970.4	–121.1	323.1	4	6 Bolt
		Allison MD3560P (MNZ/MTP)	LH	843.9	+49.6	273.7	4	10 Bolt
			LH	844.2	+54.7	277.1	4	10 Bolt
		Fuller RT6609 (MUT)	Bottom	974.8	—	425.5	4	8 Bolt
			RH	974.8	+14.5	268.6	4	6 Bolt
		Fuller RT8908LL (MT3)	Bottom	1083.2	–96.2	265.5	4	8 Bolt
			RH	—	—	—	—	—
		Fuller RT8709 (MS9)	Bottom	1083.2	–96.2	265.5	4	8 Bolt
			LH	—	—	—	—	—
		Fuller FS08406A (M69)	LH	1139.3	–118.6	301.1	4	6 Bolt
			RH	1137.5	–143.7	345.6	4	6 Bolt

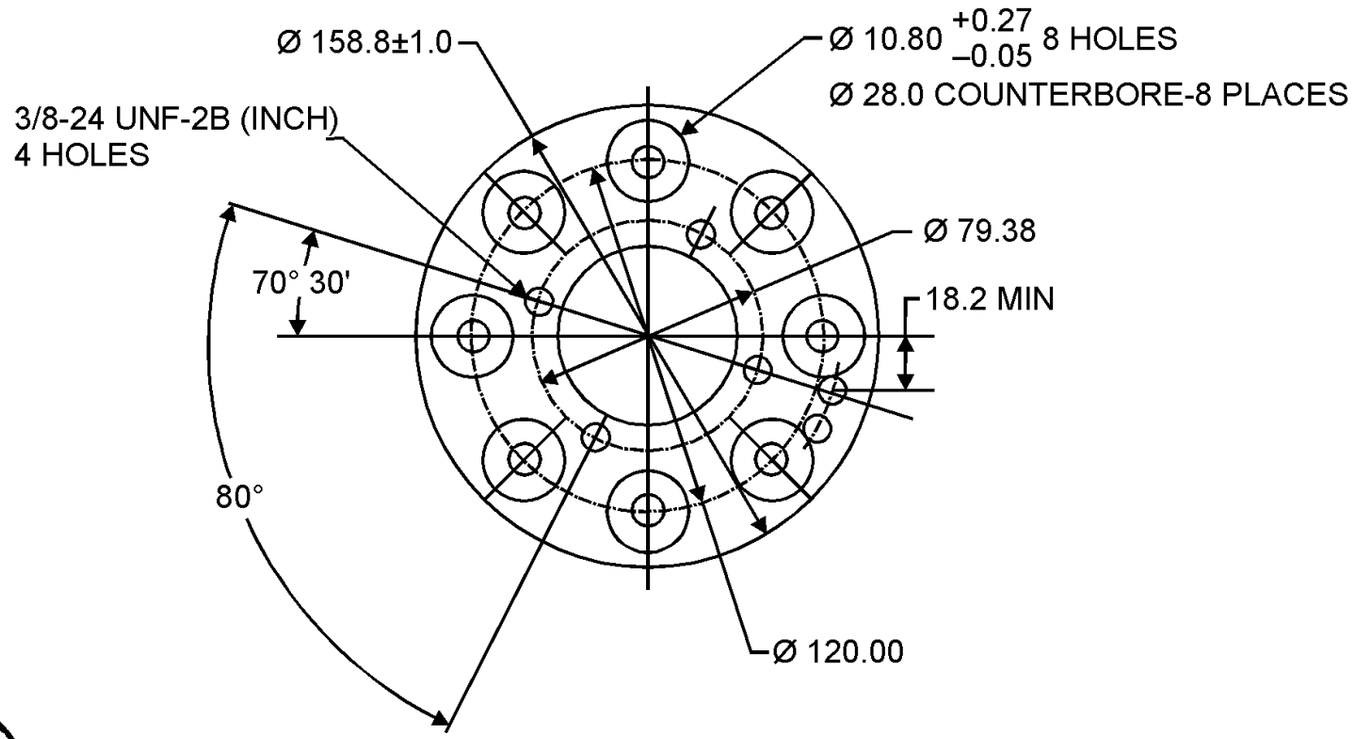
C6/7H000 Gas Engine Front, Power Take Off Location



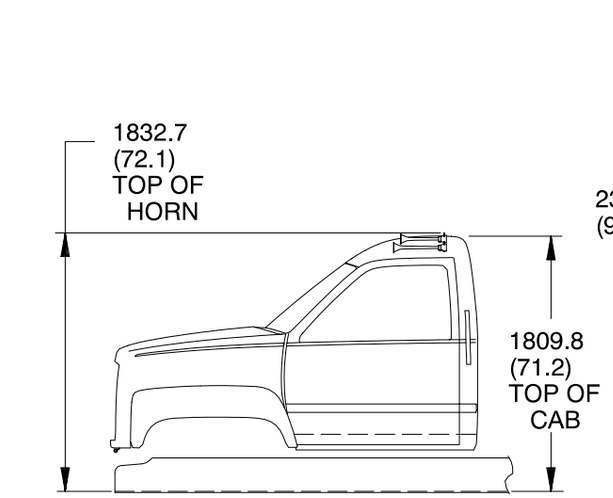


C6/7H000 Diesel Engine Front, Power Take Off Location

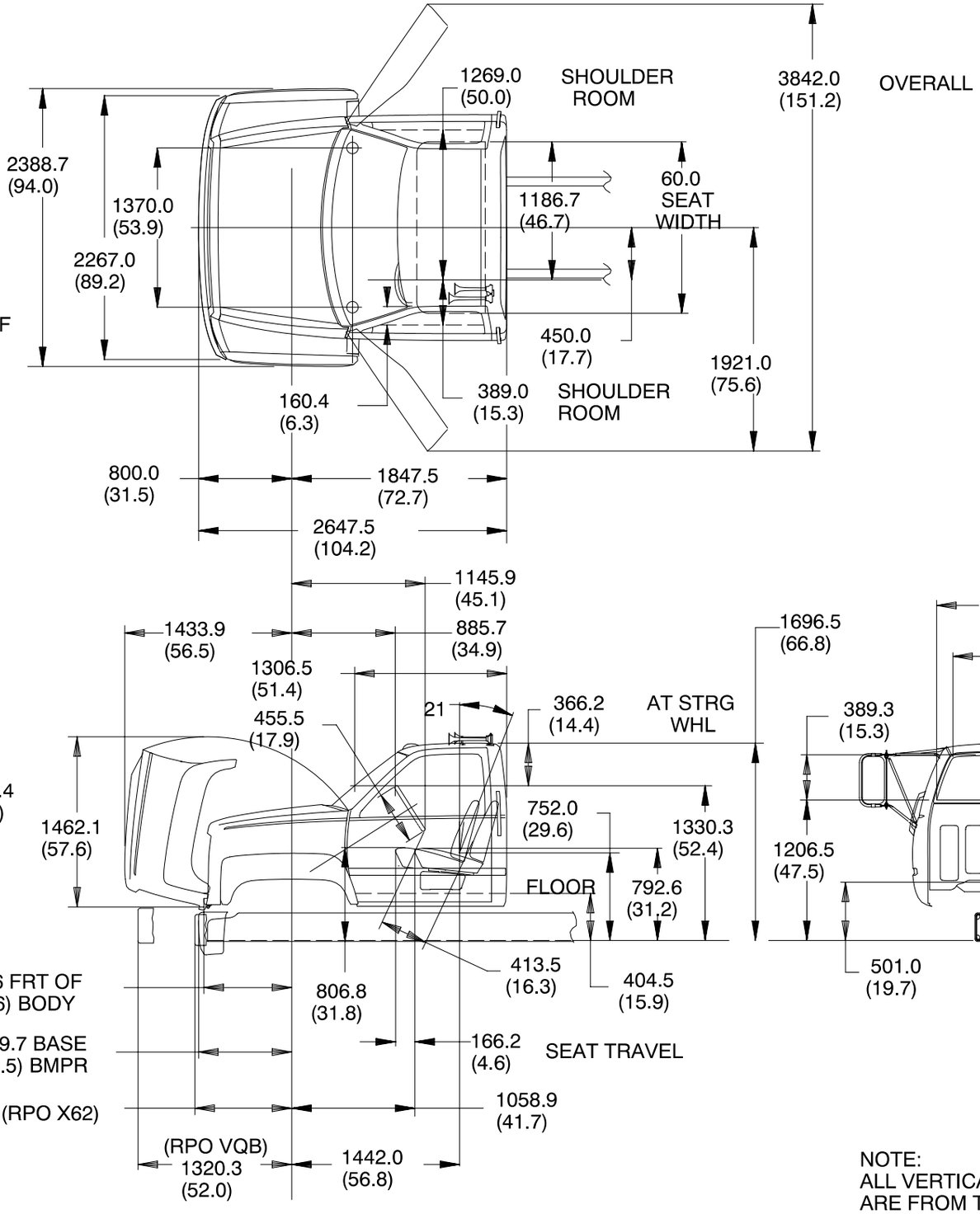




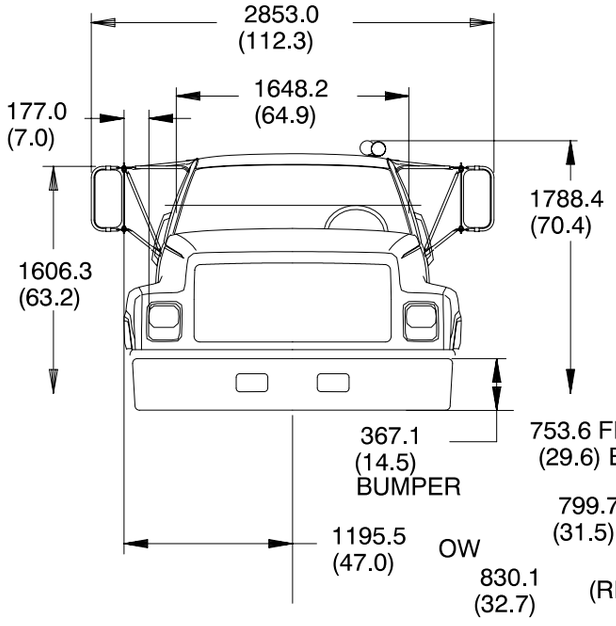
C6/7H000 Outline



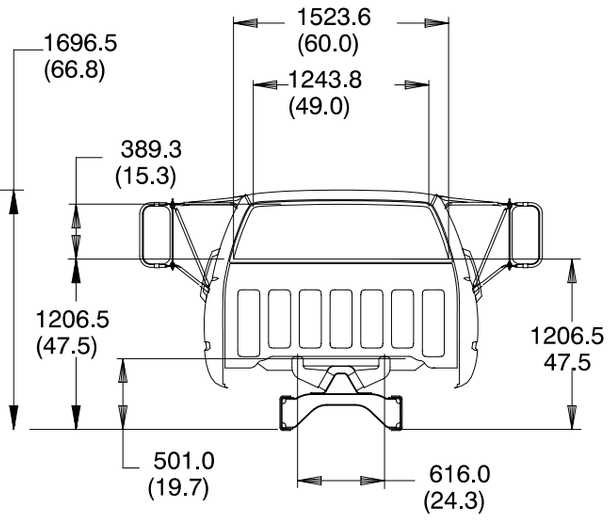
AUXILIARY SIDE VIEW
FOR CC4 (RAISED ROOF)



FRONT AXLE

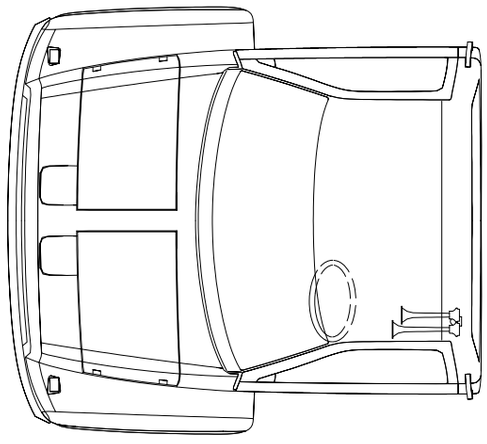


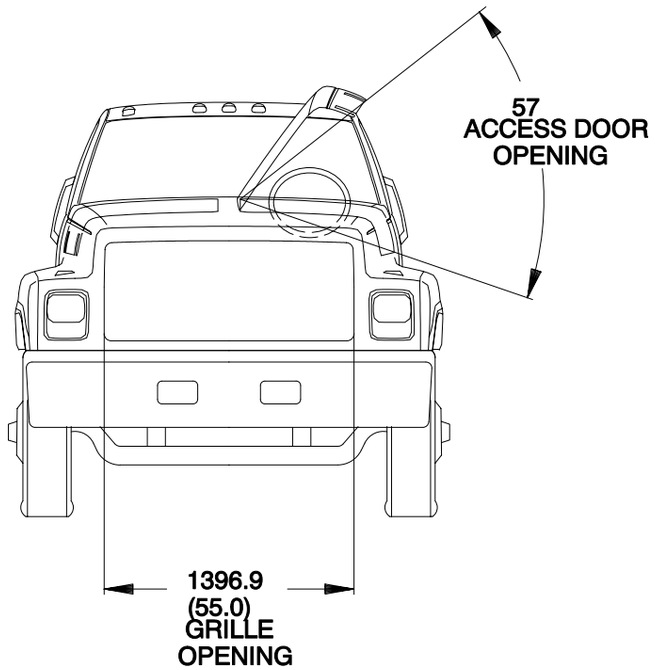
VEHICLE

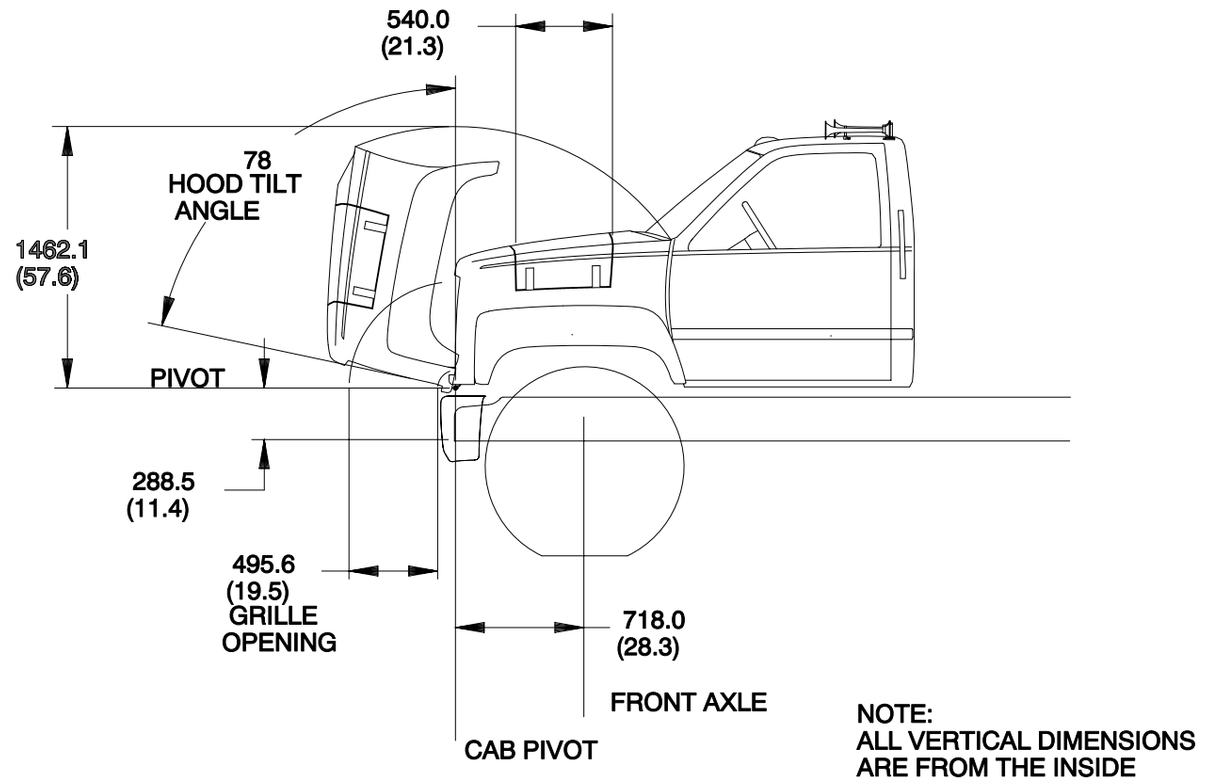


NOTE:
ALL VERTICAL DIMENSIONS
ARE FROM THE INSIDE BOTTOM
FLANGE OF FRAME

C6/7H000 Hood with Access Door







NOTE:
ALL VERTICAL DIMENSIONS
ARE FROM THE INSIDE
BOTTOM FLANGE OF FRAME.

Frame Hardness Specification

- Midland Steel purchases hot rolled steel exclusively for GMC siderails and reinforcements. That steel is straightened, (Shot Blasted), levelled and cut to length in a seperate shot blast building before it is sheared to width, for blanking and forming. The shot plasting imparts a rough surface texture to the steel which is retained in the 50 and 80 Ksi rails.
- The 110 Ksi rails are first shot blasted then induction heat treated and subsequently shot blasted which in turn imparts a different surface roughness to the rails reinforcement.
- As you are aware, the common principle in the “Rockwell” and “Brinell” instruments used to measure hardness is the indentiation of the subject surface by a hard object. The difference between the two is that the “Rockwell” instrument utilizes a diamond pyramid, whereas the “Brinell” instrument uses a tungsten carbide ball to indent the surface; and that the “Rockwell” is used on a smooth/polished surface whereas the “Brinell” is used on a uneven surface. With the above in mind, not the data measured in Brinell Hardness Numbers (BHN).
- The 50 Ksi yield material (SAE J1392 050XF) is in the 135–170 BHN range.
- The 80 Ksi yield material (SAE J1392 080XLF) is in the 217–235 BNH range.
- The 110 Ksi yield material (SAE J1527 quenched and tempered) is in the 269–331 BHN range.

C–Series Frame Material and Physical Properties

	Frame Side Rails or “L” Reinforcements			
	Frame RPO FD0	**Frame RPO FD5/F08**	**Frame RPO F02/F20**	**Frame RPO F02/FSC**
Material Steel No. or Type	SAE J1392 (Grade 50)	SAE J1392 (Grade 80)*	H.T. SAE 1027	H.T. SAE 1027
Physical Properties Minimum Tensile or Ultimate Strength (lbs. per sq. in.)	60,000	95,000 (125,000 Rated)	125,000	125,000
Minimum Yield Strength (lbs. per sq. in.)	50,000	80,000 (110,000 Rated)	110,000	110,000
Minimum Elongation in 2 Inches	22%	14%	12%	12%
Weldability	Permitted	Permitted	Not Permitted	Not Permitted
Resisting Bending Momemt (RBM) (Rated Yield Strength x Section Modulus)	50,000 x S.M. (See Next Chart)	*110,000 x S.M (See Next Chart)	110,000 x S.M. (See Next Chart)	110,000 x S.M. (See Next Chart)

* Grade 80 is rated equivalent to Heat Treated SAE 1027

C–Series Frame Strength and Dimensions

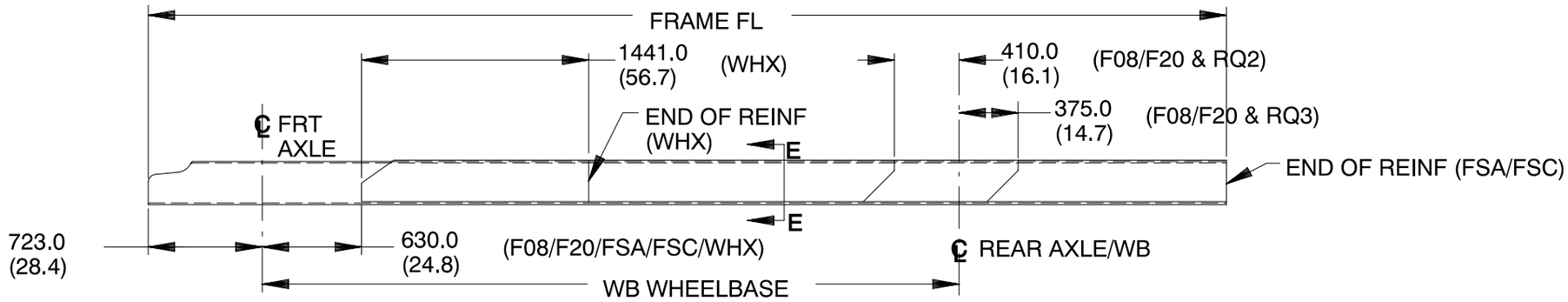
	Frame Side Rails or "L" Reinforcements		
	Frame RPO FD0	**Frame RPO FD5/F08 or FSA**	**Frame RPO F02/F20 or FSC**
Side Rail Material (Steel)	SAE J1392 (-050XLK)	SAE J1392 (-080XLF)	H.T. SAE 1027 (Heat-Treated)
Side Rail Section Outside Depth-in. (mm)	9.49 (241)	9.65 (245)	10.79 (274)
Flange Width-in. (mm)	3.00 (76)	3.00 (76)	3.00 (76)
Material Thickness-in. (mm)	0.24 (6)	0.315 (8)	0.394 (10)
Section Modulus*-in.^{3}	9.58	12.53	17.93
Rated RBM	479,000	1,378,300	1,972,300
Optional Reinforcement-RPO	F08 (SEO)	F08	F20
Type C7H042 C7H042 C7H064	Invert "L"	Invert "L" F08 length to front of rear spring hanger FSA length to end of frame F08 length to end of frame	Invert "L" F20 length to front of rear spring hanger FSC length to end of frame F20 length to end of frame
Material Thickness-in. (mm)	.24 (6)	.24 (6)	.24 (6)
Combined Section Modulus-in.^{3}	17.39	20.36	26.91
Rated Combined RBM*	1,339,000	2,239,600	2,960,100

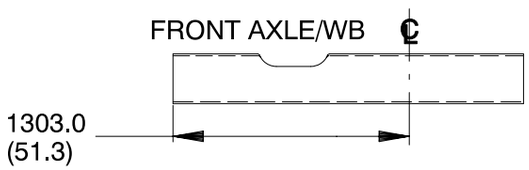
* Grade 80 is rated equivalent to Heat Treated SAE 1027

110 Heat Treated Versus 80K HSLA

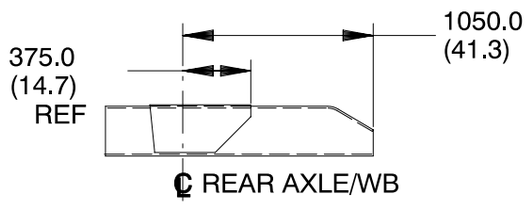
GM truck is the only major OEM to offer 80K HSLA material on all C-Series. This offering is based on fatigue testing which shows equivalency to heat treated steel. Frames fail in fatigue, not yield, and therefore the materials are equivalent with respect to service life.

C6/7H042 Single Axle

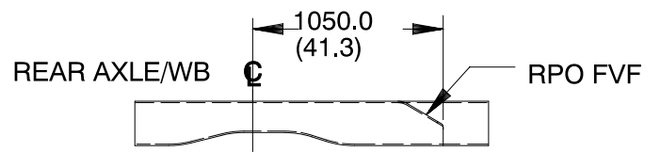




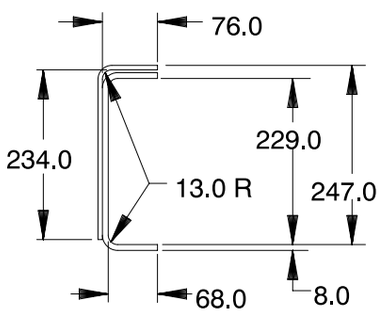
AUX VIEW FOR FRONT
END EXTENSION (FUC)



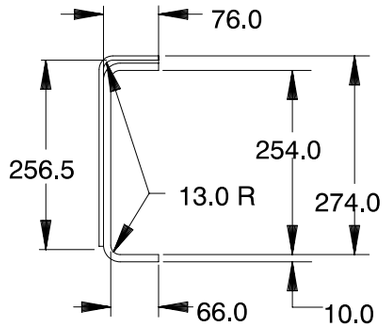
RAIL END CONFIGURATION FOR
FRAME (FD5/F02) & REINFORCEMENT
(F08/F20) & TRACTOR (RQ3)
0R GPG & FVF



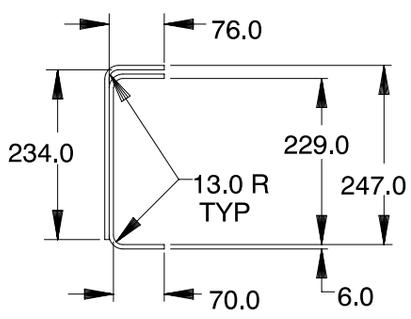
AUX VIEW FOR LOW
PROFILE PACKAGE (GPG)



SECTION E–E
FRAME (FD5) &
REINFORCEMENT (F08/FSA/WHX)



SECTION E–E
FRAME (F02) &
REINFORCEMENT (F20/FSC)



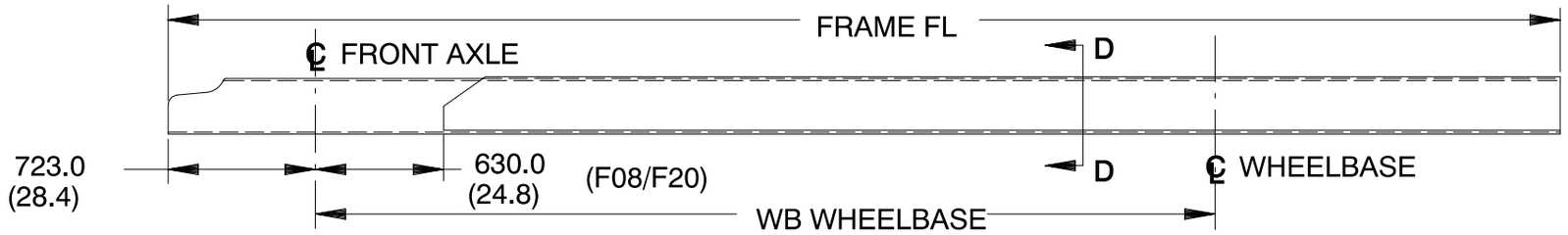
SECTION E–E
FRAME (FD0)
REINFORCEMENT (F08/FSA)

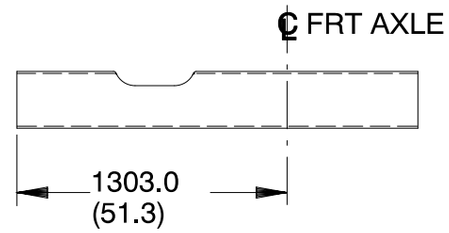
C6/7H042 Single Axle

MODEL	WHEELBASE	FRAME	FRAME REINF	FRAME FL W/RQ2	FRAME FL W/RQ3 OR GPG & FVF	FRAME FL W/FUC & RQ2
C6H042 C7H042	FPJ 133	FD0/FD5	F08	5404.0 (212.7)	———	———
	FQX 145	FD0	F08	5709.0 (224.7)	———	———
		FD5	F08/FSA	5709.0 (224.7)	5459.0 (214.9)	6289.0 (247.5)
		F02	F20/FSC			
	EG4 157	FD0	F08	6014.0 (236.7)	———	———
		FD5	F08/FSA	6014.0 (236.7)	5764.0 (226.9)	6594.0 (259.6)
		F02	F20/FSC			
	FNV 175	FD0	F08	6919.0 (272.4)	———	———
		FD5	F08/FSA	6919.0 (272.4)	6221.0 (244.9)	7499.0 (295.2)
		F02	F20/FSC			
	EK1 181	FD5	F08/FSA	7071.0 (278.3)	———	7651.0 (301.2)
		F02	F20/FSC		*6373.(250.9)	
	FWN 187	FD5	F08/FSA	7224.0 (284.4)	———	7804.0 (307.2)
		F02	F20/FSC			
	EL4 193	FD5	F08/FSA	7376.0 (290.3)	———	7956.0 (313.2)
		F02	F20/FSC			
	EL8 197	FD5	F08/FSA	8088.0 (318.4)	———	8668.0 (341.2)
		F02	F20/FSC			
	ED3 211	FD5	F08/FSA	8443.0 (332.4)	———	9023.0 (355.2)
		F02	F20/FSC			
	EQ4 229	FD5	F08/FSA	8900.0 (350.3)	———	9480.0 (373.2)
		F02	F20/FSC			
	ER7 241	FD5	F08/FSA	9205.0 (362.4)	———	———
		F02	F20/FSC			
	ET7 259	FD5	F08/FSA	9662.0 (380.3)	———	———
		F02	F20/FSC			
	ES2 245	FD5	———	———	**9307.0 (366.4)	———

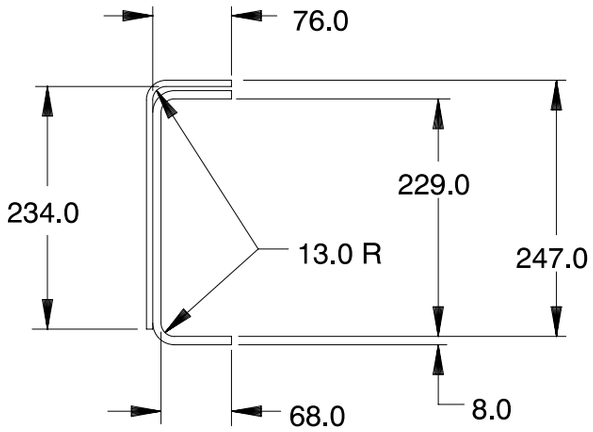
*F02 ONLY
**FD5 ONLY

C7H064 Tandem Axle

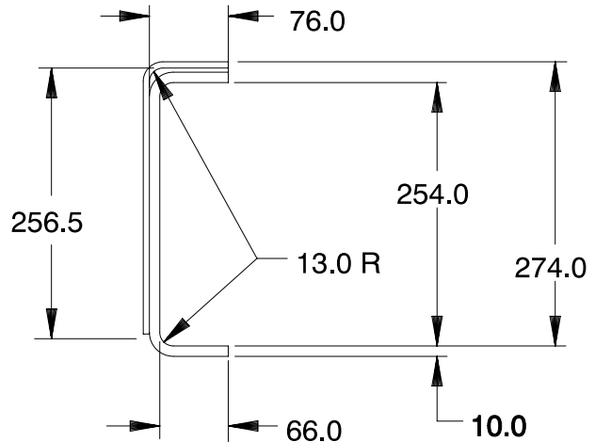




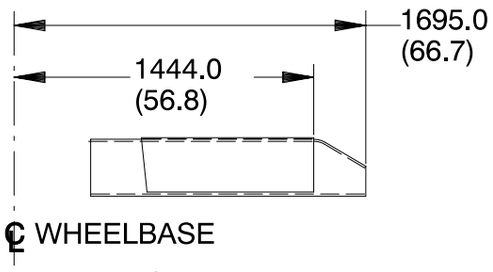
AUX VIEW FOR FRONT END EXTENSION (FUC)



SECTION D–D
FRAME (FD5) & REINFORCEMENT (F08)



SECTION D–D
FRAME (F02) & REINFORCEMENT (F20)

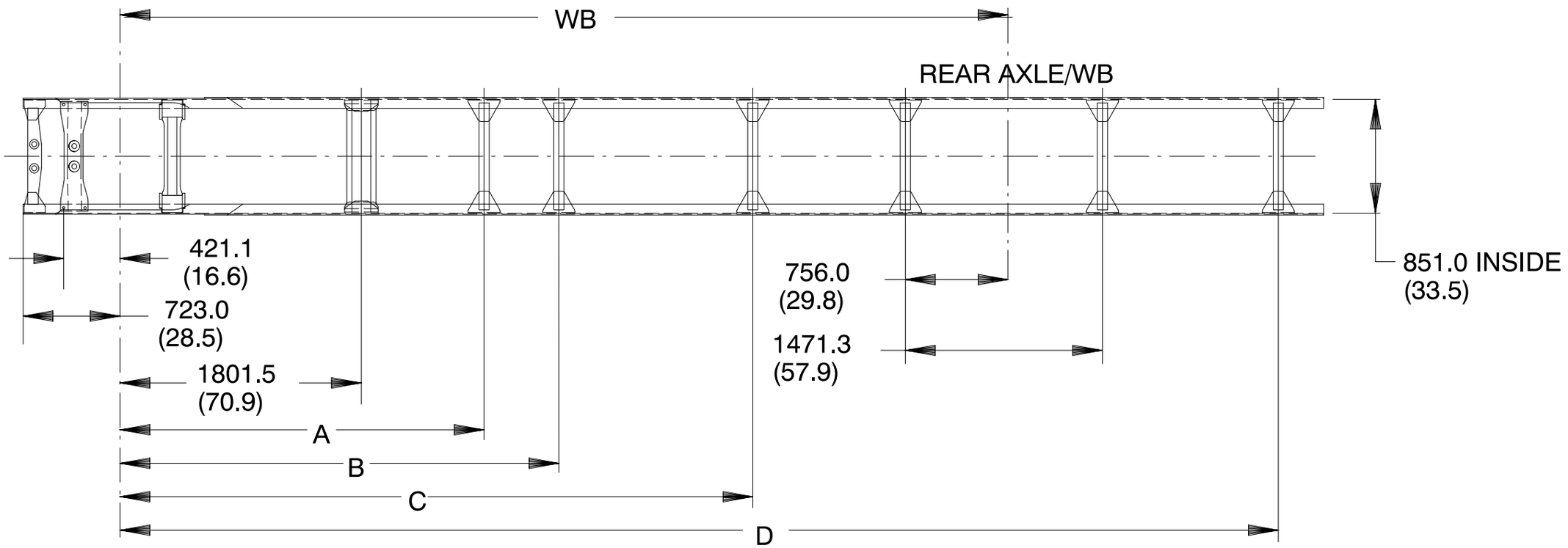


AUX VIEW FOR TAPERED FRAME RAIL END CONFIGURATION FOR FRAME (F02) & (F20) & TRACTOR (RQ3) REINFORCEMENT

MODEL	WHEELBASE	FRAME	FRAME REINF	FRAME FL W/RQ3	FRAME FL W/RQ2	FRAME FL W/FUC
C7H064	EG4 157	FO2	F20	6399.O (252.0)	6462.0 (254.4)	——
		FD5	F08	——	6462.0 (254.4)	——
	FNV 175	F02	F20	6856.0 (270.0)	6919.0 (272.4)	7499.0 (295.2)
		FD5	F08	——	6919.0 (272.4)	7499.0 (295.2)
	EK1 181	F02	F20	7008.0 (276.0)	7071.0 (278.4)	7651.0 (301.2)
		FD5	F08	——	7071.0 (278.4)	——
	FWN 187	F02	F20	——	7224.0 (284.4)	7804.0 (307.2)
	EL4 193	F02	F20	——	7376.0 (290.4)	7956.0 (313.2)
		FD5	F08	——	7376.0 (290.4)	7956.0 (313.2)

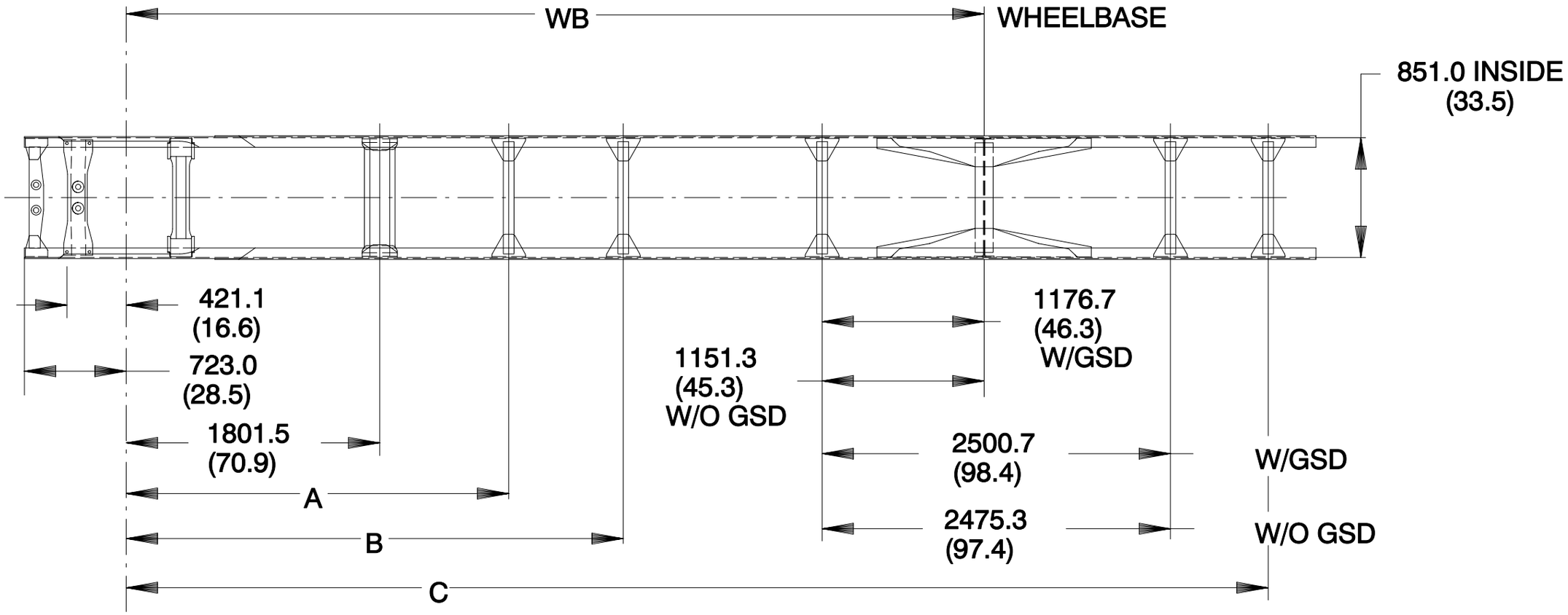
MODEL	WHEELBASE	FRAME	FRAME REINF	FRAME FL W/RQ3	FRAME FL W/RQ2	FRAME FL W/FUC
C7H064	EL8 197	F02	F20	6692.0 (263.4)	8088.0 (318.4)	——
		FD5	F08	——	8088.0 (318.4)	——
	ED3 211	F02	F20	——	8443.0 (332.4)	9023.0 (355.2)
		FD5	F08	——	8443.0 (332.4)	9023.0 (355.2)
	EQ4 229	F02	F20	——	8900.0 (350.4)	9480.0 (373.2)
		FD5	F08	——	8900.0 (350.4)	——
	ER7 241	F02	F20	——	9205.0 (362.4)	9785.0 (385.2)
		FD5	F08	——	9205.0 (362.4)	——
	ET7 259	F02	F20	——	9662.0 (380.4)	10242.0 (403.2)
		FD5	F08	——	9662.0 (380.4)	——

C6/7H042 Single Axle Crossmember Arrangement



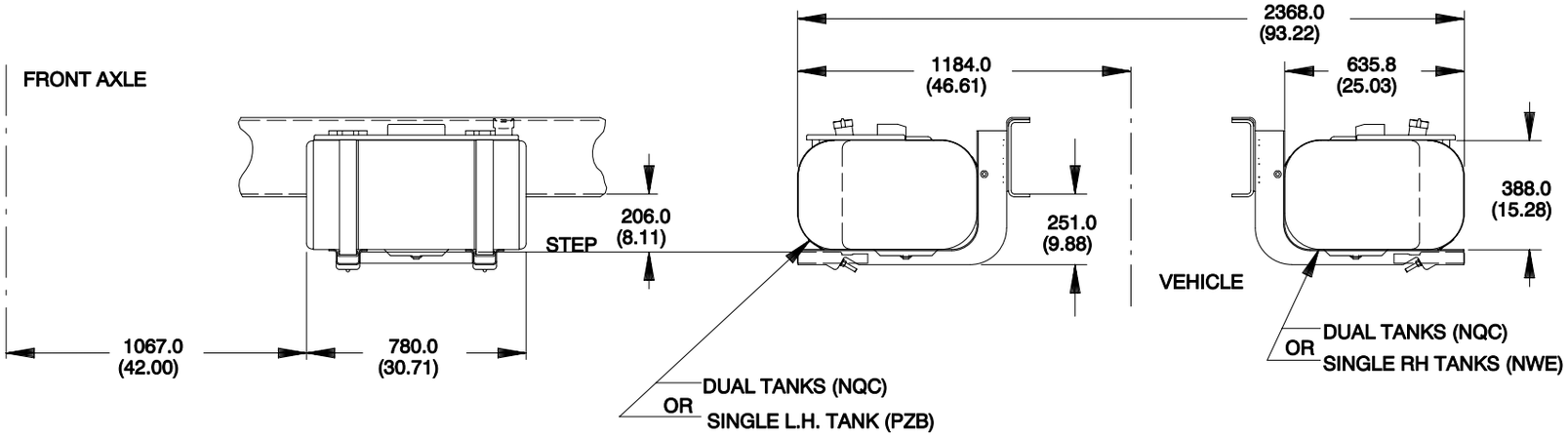
C6/C7H042 CROSSMEMBER CHART									
W/B	A	B	C	D	W/B	A	B	C	D
FPJ 133	_____	_____	_____	_____	EL8 197	3042.0 (119.8)	_____	_____	7025.0 (276.5)
FQX 145	_____	_____	_____	_____	ED3 211	2718.0 (107.0)	3635.0 (143.1)	_____	7380.0 (290.5)
EG4 157	_____	_____	_____	_____	EQ4 229	3042.0 (119.8)	3946.0 (155.3)	_____	7837.0 (308.5)
FNV 175	2718.0 (107.0)	_____	_____	5856.0 (230.5)	ER7 241	3042.0 (119.8)	4289.0 (168.8)	_____	8142.0 (320.5)
EK1 181	2718.0 (107.0)	_____	_____	6008.0 (236.5)	ES2 245	3042.0 (119.8)	4289.0 (168.8)	_____	8244.0 (324.5)
FWN 187	2718.0 (107.0)	_____	_____	6161.0 (242.5)	ET7 259	2718.0 (107.0)	3304.0 (130.0)	4749.0 (186.9)	8599.0 (338.5)
EL4 193	3042.0 (119.8)	_____	_____	6313.0 (248.5)					

C7H064 Tandem Axle Crossmember Arrangement



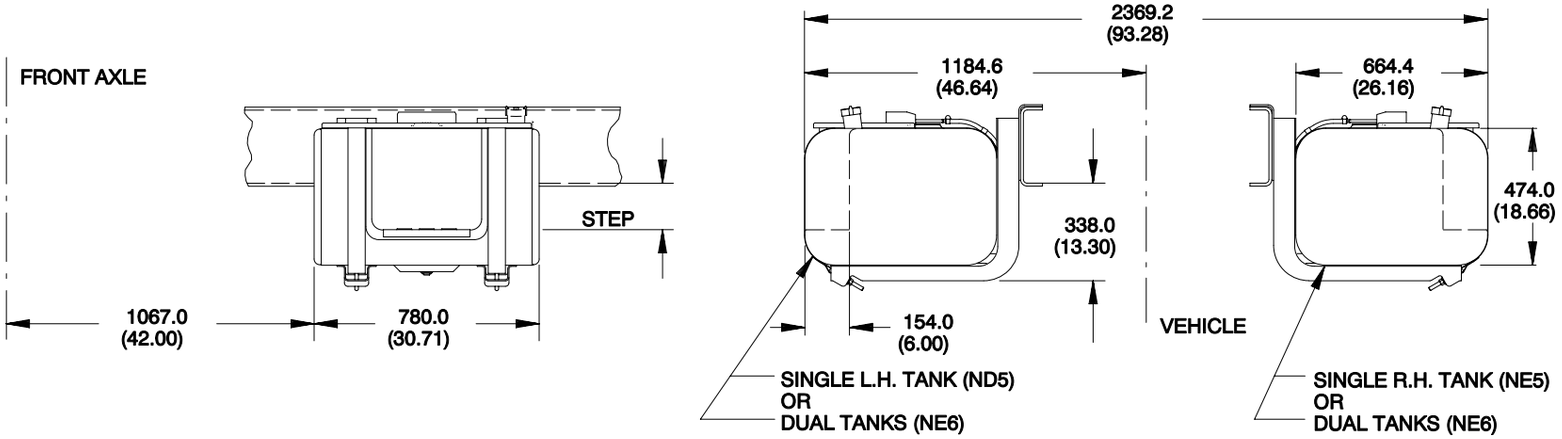
C7H064 CROSSMEMBER CHART										
WB	RPO EG4 157	RPO FNV 175	RPO EK1 181	RPO FWN 187	RPO EL4 193	RPO EL8 197	RPO ED3 211	RPO EQ4 229	RPO ER7 241	RPO ET7 259
A	—	2718.0 (107.0)	2718.0 (107.0)	2718.0 (107.0)	2718.0 (107.0)	2718.0 (107.0)	2718.0 (107.0)	2718.0 (107.0)	2718.0 (107.0)	2718.0 (107.0)
B	—	—	—	—	—	—	—	3532.0 (139.0)	3532.0 (139.0)	4162.0 (163.8)
C	—	—	—	—	—	7025.0 (276.5)	7380.0 (290.5)	7837.0 (308.5)	8142.0 (320.5)	8599.0 (338.5)

C6/7H000 35, 50 and 60 Gallon Fuel Tanks

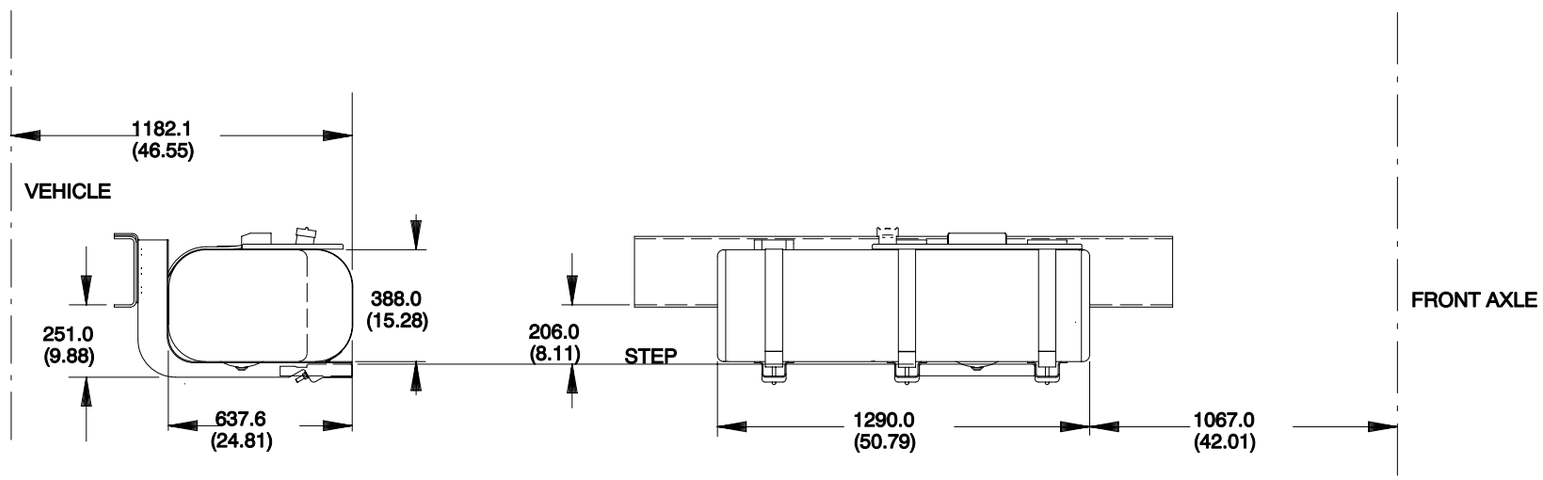


35 Gallon

REAR VIEW

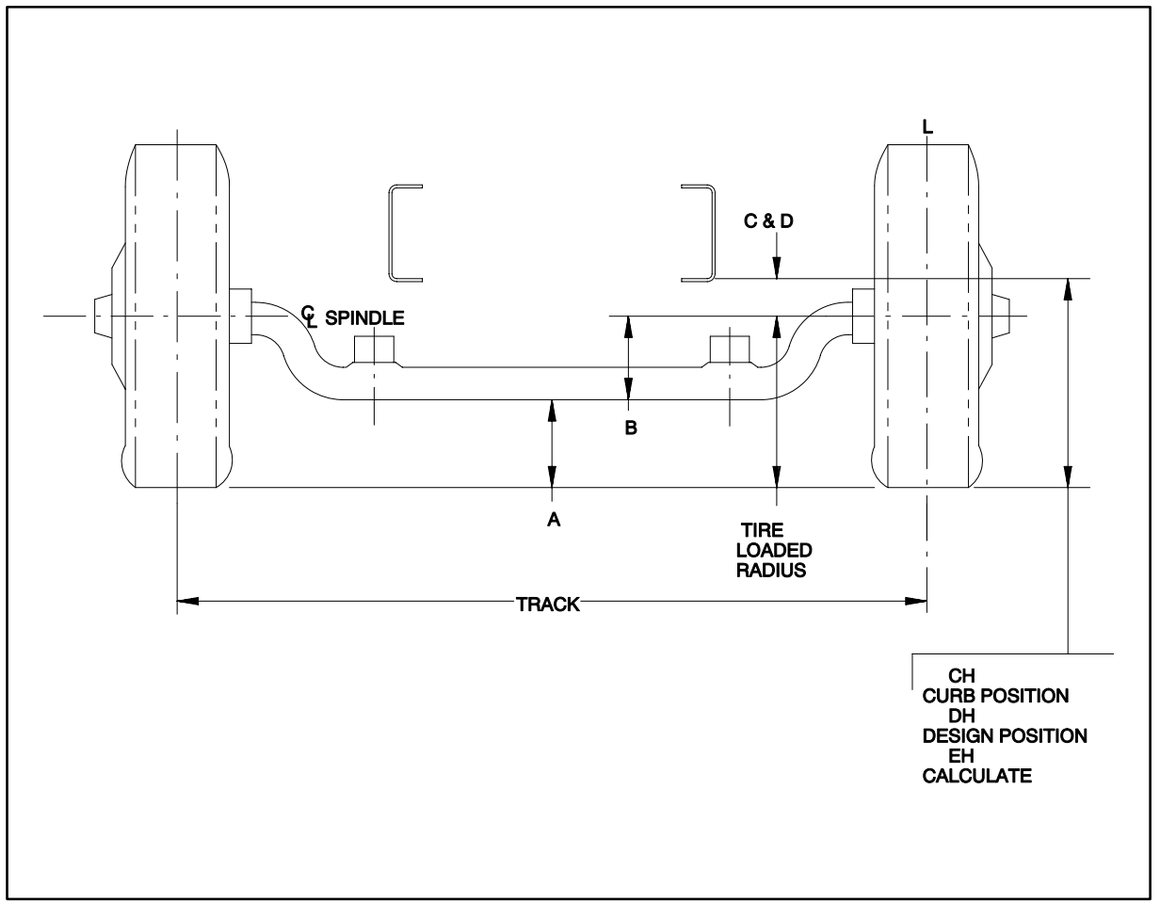


50 Gallon



60 Gallon

Formulas for Calculating Height Dimensions



A = Tire loaded radius – B

B = Centerline of axle to bottom of beam

C = Centerline of axle to bottom inside of rail at curb position

D = Centerline of axle to bottom inside of rail at design load

CH = C + Tire loaded radius

DH = D + Tire loaded radius

Track = Wheel offset at spindle
Track at ground will vary with camber angle and tire/wheel combinatio

Front Axle Track Dimensions

				Axles & Brakes RPO					
				FL1		FL2/FS7	FL2	FL3/FS7	FH4
Wheel Type	Wheel RPO	Wheel Size	Wheel Offset	JE3 (HYD)	JE4 (AIR)	JE3	JE4	JE4	JE4
Disc	Q82	19.5 x 6.75	5.60	2066.3	—	—	—	—	—
Disc	RPM	19.5 x 6.75	6.50	2091.2	—	—	—	—	
Disc	RCE	20.0 x 7.0	6.50	2020.5	2018.1	2025.7	2027.1	—	—
Cast	QK3	20.0 x 7.0	4.50	2047.8	2041.8	2054.4	2076.7	—	—
Disc	QH1	20.0 x 7.5	6.50	2020.5	2018.1	2025.7	2027.1	—	—
Cast	QK1	20.0 x 7.5	4.75	2035.1	2029.1	2041.7	2064.0	2056.5	—
Disc	RNC	20.0 x 7.5	6.50	2022.7	2020.4	2027.7	2029.1	2021.1	—
Cast	QJ3	20.0 x 8.0	5.00	—	—	2029.0	2051.3	2043.5	2077.8
Disc	RCX	20.0 x 8.0	6.62	2017.2	2014.8	2022.1	2023.5	2015.5	2024.5
Disc	RLE	22.5 x 7.5	6.44	2023.4	2020.8	2028.5	2029.8	2021.6	—
Disc	QH3	22.5 x 7.5	6.44	2023.5	2021.1	2028.7	2030.1	2022.1	—
Cast	QM1	22.5 x 7.5	4.50	2047.8	2041.8	2054.4	2076.7	2068.9	—
Disc	RPS	22.5 x 7.5	6.45	2051.7	2049.4	2056.6	2058.0	—	—
Disc	RPF	22.5 x 8.25	6.62	—	—	2024.2	2025.6	2012.5	2026.1
Disc	RPQ	22.5 x 8.25	6.62	2017.4	2014.8	2022.6	2023.8	2015.8	2027.2
Disc	RNE	22.5 x 8.25	6.59	—	2038.6	—	2047.6	2039.4	—
Disc	RPU	22.5 x 8.25	6.59	2034.8	2032.4	2049.4	2050.8	2042.0	—
Disc	RRS	22.5 x 8.25	6.62	2017.5	2015.0	2022.6	2024.0	2012.5	2024.5
Cast	QM6	22.5 x 8.25	4.75	2035.1	2029.1	2041.7	2064.0	2056.2	2069.1
Cast	RHL	22.5 x 9.0	5.00	—	—	2027.6	2049.9	2043.5	2082.0
Disc	QH8	22.5 x 9.0	5.75	2064.9	2062.6	2069.9	2071.3	2063.3	2074.6
Disc	QA5	22.5 x 9.0	7.00	—	—	—	—	—	2180.6
Cast	Q8F	22.5 x 12.25	4.75	—	—	—	—	—	2099.6
Disc	RSG	24.5 x 8.25	6.62	—	2013.1	—	2022.5	2014.4	—
Cast	Q39	20.0 x 8.5	5.30	—	—	—	—	2033.8	2079.5

C6/7 Front Suspensions

RPO	Capacity	Type of Spring
F39	5,850 lbs. (2,650 Kg)	Tapered Leaf
FSF	6,950 lbs. (3,152 Kg)	
F12	7,000 lbs. (3,175 Kg)	
F14	8,100 lbs. (3,675 Kg)	
F15	9,000 lbs. (4,090 Kg)	
FNO	11,000 lbs. (5,000 Kg)	
F26	12,000 lbs. (5,450 Kg)	
FMO	14,600 lbs. (6,610 Kg)	Multi-Leaf
F28	16,000 lbs. (7,257 Kg)	
FM1	18,000 lbs. (4,090 Kg)	
FK9	9,000 lbs. (4,090 Kg)	

C6/7 Front Suspensions

RPO	Capacity	RPO
FL1	8,100 lbs. (3,675 Kg)	JE3 (HYD) or JE4 (AIR)
FL2	11,000 lbs. (5,000 Kg)	
FS7	12,000 lbs. (5,450 Kg)	
FL3	14,600 lbs. (6,610 Kg)	JE4
FH4	16,000 lbs. (7,257 Kg)	

C6H042 Front Axle Chart, Suspension Dimensions

Axle		Suspension			Frame	Stabilizer	Low Profile	Dimension		
RPO	Capacity	RPO	Capacity	Rated	RPO	RPO	RPO	B	C	D
FL1	8,100 lbs. 3,675 Kg	F39	5,850 lbs. 2,650 Kg	5,850 lbs. 2,650 Kg	FD0	F59 or w/o F59	w/o GPG	186.00	185.10	153.60
					FD5				187.10	155.60
		FSF	6,950 lbs. 3,152 Kg	6,950 lbs. 3,152 Kg	FD0	w/o F59			226.50	186.80
					FD5				228.50	188.80
		F12	7,000 lbs. 3,175 Kg	7,000 lbs. 3,175 Kg	FD0	F59			217.10	152.10
					FD5				219.10	154.10
					FD0	w/o F59	GPG w/o SMF	—	—	—
					FD5			186.00	189.60	142.10
					FD0		GPG w SMF	—	—	—
					FD5			186.00	169.70	122.20
		F14	8,100 lbs. 3,675 Kg	8,100 lbs. 3,675 Kg	FD0	F59	w/o GPG		228.00	152.40
					FD5				230.00	154.40
					FD0		GPG w/o SMF	—	—	—
					FD5			186.00	194.70	128.50
		F15	9,000 lbs. 4,090 Kg	9,000 lbs. 4,090 Kg	FD0	F59	w/o GPG	186.00	226.5	170.3
					FD5				228.5	172.3
					FD0	w/o F59			221.90	174.5
					FD5				223.9	176.5
		FK9	9,000 lbs. 4,090 Kg	9,000 lbs. 4,090 Kg	FD0	F59 or w/o F59			220.6	174.9
					FD5				222.6	176.9
					FD0				174.9	174.9
					FD5				176.9	176.9

C7H042 Front Axle Chart, Suspension Dimensions

Axle		Suspension			Frame	Stabilizer	Dimension			Option
RPO	Capacity	RPO	Capacity	Rated	RPO	RPO	B	C	D	
FL1	8,100 lbs. 3,675	FSF	6,950 lbs. 3,125 Kg	6,950 lbs. 3,125 Kg	FD0	W/O F59	186.00	226.50	186.80	
					FD5		186.00	228.50	188.80	
					FO2		186.00	230.50	190.80	
		F12	7,000 lbs. 3,175 Kg	7,000 lbs. 3,175 Kg	FD0	F59	186.00	217.10	152.10	
					FD5		186.00	219.10	154.10	
					FO2		186.00	221.10	156.10	
		F14	8,100 lbs. 3,675	8,100 lbs. 3,675	FD0	F59	186.00	228.00	152.40	
					FD5		186.00	230.00	154.40	
					FO2		186.00	232.00	156.40	
					FD0	W/O F59	186.00	226.50	170.30	
					FD5		186.00	228.50	172.30	
					FO2		186.00	230.50	174.30	
		F15	9,000 lbs. 4,090 Kg		FD0	F59	186.00	226.50	170.30	
					FD5		186.00	228.50	172.30	
					FO2		186.00	230.50	174.30	
					FD0	W/O F59	186.00	221.90	174.50	
					FD5		186.00	223.90	176.50	
					FO2		186.00	225.90	178.50	
		FK9	9,000 lbs. 4,090 Kg		FD0	F59 or W/O F59	186.00	220.60	174.90	
					FD5		186.00	222.60	176.90	
					FO2		186.00	224.60	178.90	
		FNO	11,000 lbs. 5,000 Kg		FD0	F59 or W/O F59	186.00	221.90	174.50	
					FD5		186.00	223.90	176.50	
					FO2		186.00	225.90	178.50	
FL2	11,000 lbs. 5,000 Kg	F15	9,000 lbs. 4,090 Kg	9,000 lbs. 4,090 Kg	FD0	F59	220.00	214.60	148.50	
					FD5		220.00	216.60	150.50	
					FO2		220.00	218.60	152.50	
					FD0	W/O F59	220.00	211.70	156.30	
					FD5		220.00	213.70	158.30	
					FO2		220.00	215.70	160.30	
		FN0	11,000 lbs. 5,000 Kg	11,000 lbs. 5,000 Kg	FD0	F59	220.00	231.50	152.30	
					FD5		220.00	233.50	154.30	
					FO2		220.00	235.50	156.30	
		F26	12,000 lbs. 5,450 Kg		FD0		220.00	246.40	165.40	RQ2
					FD5		220.00	248.40	167.40	
					FD0		220.00	250.40	169.40	

Axle		Suspension			Frame	Stabilizer	Dimension			Option
RPO	Capacity	RPO	Capacity	Rated	RPO	RPO	B	C	D	
FS7	12,000 lbs. 5,450 Kg	F26	12,000 lbs. 5,450 Kg	12,000 lbs. 5,450 Kg	FD0	W/O F59	220.00	233.50	169.10	
					FD5		220.00	235.50	171.10	
					FO2		220.00	237.50	173.10	
					FD0	F59	220.00	246.40	153.30	
					FD5		220.00	248.40	155.30	
					FO2		220.00	250.40	157.30	
FL3	14,600 lbs. 6,610 Kg				FD0		236.00	246.40	156.80	
					FD5		236.00	248.40	158.80	
					FO2		236.00	250.40	160.80	
					FD0	W/O F59	228.50	250.60	176.60	
					FD5		228.50	252.60	178.60	
					FO2		228.50	254.60	180.60	
FS7	12,000 lbs. 5,450 Kg	FM0	14,600 lbs. 6,610 Kg	12,000 lbs. 5,450 Kg	FD0	F59 or W/O F59	241.00	236.10	184.80	
					FD5		241.00	238.10	186.80	
					FO2		241.00	240.10	188.80	
FL3	14,600 lbs. 6,610 Kg			14,600 lbs. 6,610 Kg	FD0		228.50	243.70	177.20	
					FD5		228.50	245.70	179.20	
					FO2		228.50	247.70	181.20	
					FD0		228.50	243.70	178.40	FSE
					FD5		228.50	245.70	180.40	
					FO2		228.50	247.70	182.40	
		F28	16,000 lbs. 7,250 Kg	14,600 lbs. 6,610 Kg	FD0		228.50	238.60	179.10	
					FD5		228.50	240.60	181.10	
					FO2		228.50	242.60	183.10	
					FD0		228.50	238.60	176.70	
					FD5		228.50	240.60	178.70	
					FO2		228.50	242.60	180.70	
FH4	16,000 lbs. 7,250 Kg			16,000 lbs. 7,250 Kg	FO2		227.88	255.30	186.40	
		FM1	18,000 lbs. 8,150 Kg		FO2		227.88	260.90	202.20	

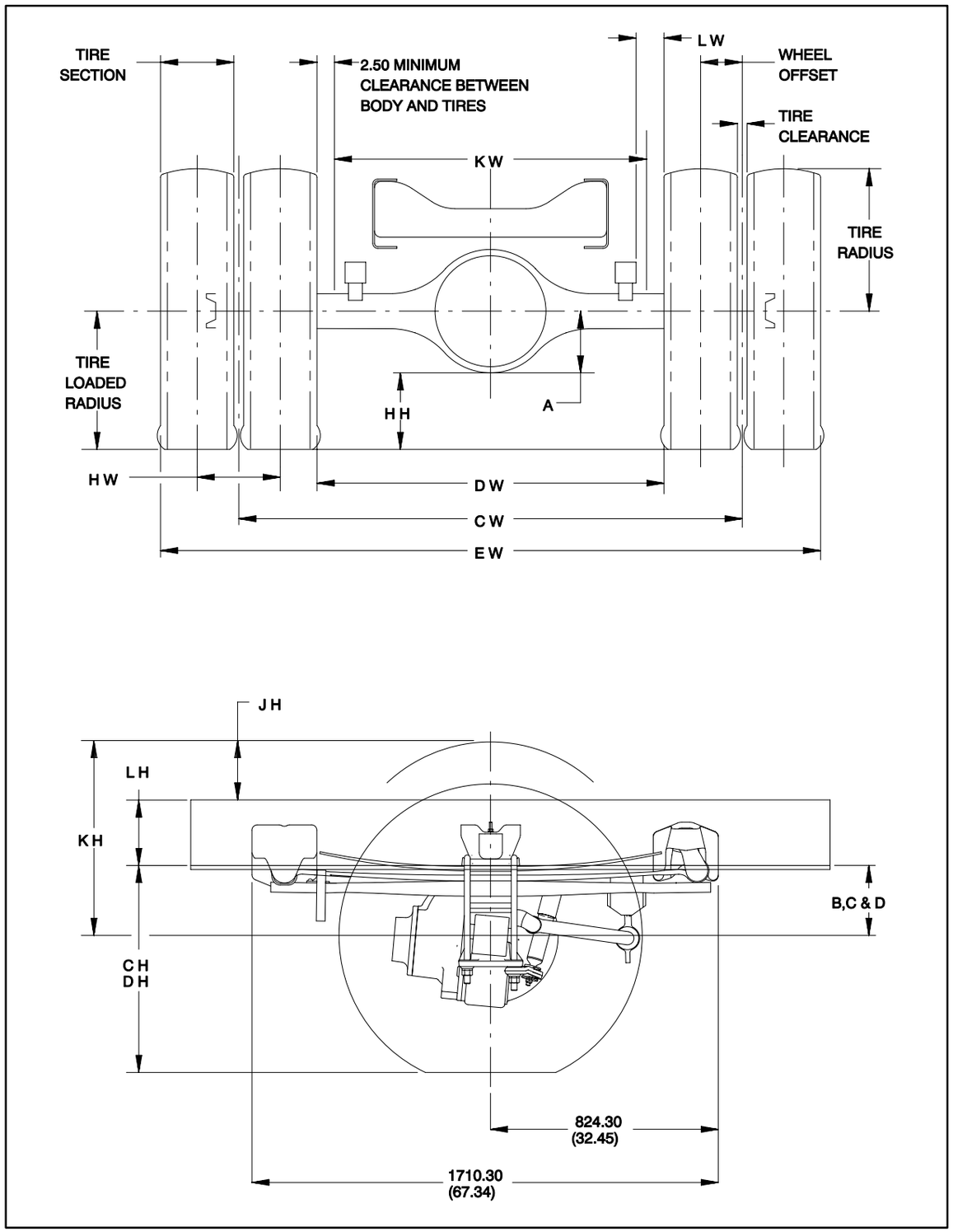
MEDIUM DUTY C SERIES

Axle		Suspension			Frame	Stabilizer	Dimension			Option	Axle		Suspension			Frame	Stabilizer	Dimension			Option
RPO	Capacity	RPO	Capacity	Rated	RPO	RPO	B	C	D		RPO	Capacity	RPO	Capacity	Rated	RPO	RPO	B	C	D	
FL2	11,000 lbs. 5,000 Kg	F26	12,000 lbs. 5,450 Kg	12,000 lbs. 5,450 Kg	FO2	F59	220.00	246.40	153.30	RQ3											
					FD5		220.00	248.40	155.30												
					FO2		220.00	250.40	157.30												
				11,000 lbs. 5,000 Kg	FD0	W/O F59	220.00	243.30	178.90												
					FD5		220.00	245.30	180.90												
					FO2		220.00	247.30	182.90												
		FM0	14,575 lbs. 6,610 Kg	11,000 lbs. 5,000 Kg	FD0	F59 or W/O F59	231.00	234.30	191.50												
					FD5		231.00	236.30	193.50												
					FO2		231.00	238.30	195.50												

C7H064 Front Axle Chart, Suspension Dimensions

Axle		Suspension			Frame	Stabilizer	Dimension			Option
RPO	Capacity	RPO	Capacity	Rated	RPO	RPO	B	C	D	
FL2	11,000 lbs. 5,000 Kg	FM0	14,575 lbs. 6,610 Kg	14,575 lbs. 6,610 Kg	FD5	F59 or W/O F59	220.00	236.30	193.50	
					F02		220.00	238.30	195.50	
		F26	12,000 lbs. 5,450 Kg	11,000 lbs. 5,000 Kg	FD5	F59	220.00	248.40	167.40	
					F02		220.00	250.40	169.40	
					FD5	W/O F59	220.00	245.30	180.90	
					F02		220.00	247.80	182.90	
FL3	14,575 lbs. 6,610 Kg			12,000 lbs. 5,450 Kg	FD5	F59	236.00	248.40	158.80	
					F02		236.00	250.40	160.80	
					FD5	W/O F59	228.50	252.60	178.60	
					F02		228.50	254.60	180.60	
		FM0	14,575 lbs. 6,610 Kg	14,575 lbs. 6,610 Kg	FD5	F59 or W/O F59	228.50	245.70	179.20	
					F02		228.50	247.70	181.20	
					FD5		228.50	245.70	180.40	FSE
					F02		228.50	247.70	182.40	
		F28	16,000 lbs. 7,250 Kg		FD5		228.50	240.60	178.70	
					F02		228.50	242.60	180.70	
FH4	16,000 lbs. 7,250 Kg			16,000 lbs. 7,250 Kg	F02		227.88	256.10	187.50	
		FM1	18,000 lbs. 8,150 Kg	16,000 lbs. 7,250 Kg	F02		227.88	260.90	202.20	

C6/7H042 Rear Axle Chart Formula



Definitions:

A – Centerline of axle to bottom of axle bowl

B – Centerline of axle to bottom inside rail at inf. bump.

C – Centerline of axle to bottom inside rail at curb pos.

D – Centerline of axle to bottom inside rail at design load

CH – Rear Frame Height
Distance between the bottom inside rail and the ground-line through the vertical centerline of the rear axle at curb position.

D H – Rear Frame Height Distance between the bottom inside rail and the ground-line through the vertical centerline of the rear axle at design position.

HH – Rear Axle Clearance
Minimum clearance between the rear axle and the ground-line.

JH – Rear Tire Clearance
Minimum clearance required for tires and chains measured from the top of the frame at the vertical centerline of the rear axle.

KH – Chain Clearance

LH – Distance from the bottom inside rail to the top of rail.

CW – Track Dual Wheel Vehicles
Distance between the centerlines of the dual wheels as measured at the ground-line.

DW – Minimum distance between the inner surfaces of the rear tires.

EW – Maximum Rear Width
Over-all width of vehicle measured at the outer most surface of the rear tires.

HW – Dual Tire Spacing
Distance between the centerlines of the tires in a set of dual tires.

KW – Rear Body Width
Maximum body width between rear tires.

See Tire Chart for values: Tire Selection, Tire Radius, Tire Loaded Radius and Tire Clearance

Formulas for calculating rear width and height dimensions:

CH = Tire loaded radius + C + L H
DH = Tire loaded radius + D + L H
HH = Tire loaded radius – A
JH = K H – B – L H
KH = Tire radius + 3.00 in.
CW = Track
DW = Track – 1 Tire section – H W
EW = Track + 1 Tire section + H W
KW = D W – 5.00 in.
LW = 1.00 in. minimum clearance between tires and springs

NOTE: Track and overall width may vary with optional equipment.

C6/7H042 Rear Axle Charts, Suspension Dimensions

Rear Suspensions			Rear Axles						Brakes
RPO	Capacity	Type of Spring	RPO	Capacity	Mfg. & No.		Speed	A	RPO
GP6	11,000 lbs. (5,000 Kg)	Tapered Leaf	H10	15,000 lbs.	Eaton	15040S	Single	209.0	JE3 (HYD)
GZH	12,000 lbs. (5,440 Kg)	Tapered Leaf	HZT	17,850 lbs.	Eaton	19050T	Two	230.0	JE3 or JE4
GP7	13,500 lbs. (6,120 Kg)	Tapered Leaf	H11	19,000 lbs.	Eaton	19050S	Single	221.0	JE3 or JE4
GQO	15,000 lbs. (6,800 Kg)	Tapered Leaf	H17	19,000 lbs.	Eaton	19050T	Two	240.0	JE3 or JE4
GGO	15,000 lbs. (6,800 Kg)	Multi-Leaf	HPA	26,000 lbs.	Eaton	26105S	Single	273.0	JE4
GG7	19,900 lbs. (7,670 Kg)	Tapered Leaf	HPB	30,000 lbs.	Eaton	30105S	Single	273.0	JE4
GP9	17,850 lbs. (8,100 Kg)	Tapered Leaf	HPK	9,000 lbs.	Eaton	19055S	Single	230.0	JE3 or JE4
GN2	19,000 lbs. (8,620 Kg)	Tapered Leaf	HPL	19,000 lbs.	Eaton	19055D	Single	230.0	JE4
GNO	19,000 lbs. (8,620 Kg)	Multi-Leaf	HPM	19,000 lbs.	Eaton	19055T	Two	257.0	JE3 or JE4
G40	19,000 lbs. (8,620 Kg)	Air Ride	HPP	21,000 lbs.	Eaton	21065S	Single	230.0	JE3 or JE4
GR9	21,000 lbs. (9,525 Kg)	Tapered Leaf	H15	21,000 lbs.	Eaton	21065T	Two	257.0	JE3 or JE4
GN8	21,000 lbs. (9,525 Kg)	Multi-Leaf	HPN	21,000 lbs.	Eaton	21065D	Single	230.0	JE4
GPO	23,000 lbs. (10,430 Kg)	Tapered Leaf	HQR	22,000 lbs.	Rockwell	RS-22160	Single	260.0	JE4
GP1	23,000 lbs. (10,430 Kg)	Multi-Leaf	HPG	22,000 lbs.	Eaton	22065S	Single	230.0	JE4
GYN	23,000 lbs. (10,430 Kg)	Radius Leaf	HPH	22,000 lbs.	Eaton	22065T	Two	257.0	JE4
GP8	27,000 lbs. (12,242 Kg)	Multi-Leaf	HPF	22,000 lbs.	Eaton	22070S	Single	257.0	JE4
GQ3	31,000 lbs. (14,060 Kg)	Multi-Leaf	H14	23,000 lbs.	Rockwell	R-160	Single	260.0	JE4
GN8	21,000 lbs. (9,525 Kg)	Multi-Leaf	HPQ	23,000 lbs.	Eaton	23070S	Single	257.0	JE4
			H20	23,000 lbs.	Eaton	23070T	Two	257.0	JE4
			HNA	23,000 lbs.	Eaton	23105S	Single	273.0	JE4
			HNG	23,000 lbs.	Eaton	23421	Single	270.0	JE4
			HWH	23,000 lbs.	Eaton	23070P	Single	270.0	JE4
			HVQ	26,000 lbs.	Eaton	26085P	Single	270.0	JE4
			GJ4	26,000 lbs.	Eaton	26085T	Two	270.0	JE4
			HXB	17,850 lbs.	Eaton	19060S	Single	230.0	JE4
			HXC	16,900 lbs.	Eaton	19060S	Single	230.0	JE4
			H08	15,000 lbs.	Data	S-150S	Single	230.0	JE3

C6H042 Rear Axle Chart, Suspension Dimensions

Axle		Suspension		Frame	SHOCK ABS.	Stabilizer	Aux. Spring	Dimensions		
RPO	Capacity	RPO	Capacity	RPO	RPO	RPO	RPO	B	C	D
H08	15,000 lbs. (6,800 Kg)	GP7	13,500 lbs. (6,120 Kg)	FDO FD5	G68	GN1 or w/o GN1	G60	100.6	246.9	174.6
							w/o G60	100.6	246.9	166.0
		GQ0	15,000 lbs. (6,800 Kg)				G60	105.4	251.7	177.7
						GN1	w/o G60	105.4	251.7	169.7
		GG0			G68 or w/o G68	GN1 or w/o GN1	G60	123.5	277.7	197.9
							w/o G60	123.5	277.7	194.0
		GG7	19,900 lbs. (7,666 Kg)		G68		G60	—	—	—
		GN2	19,000 lbs. (8,620 Kg)				w/o G60	62.6	176.3	128.1
								110.6	267.0	196.4
		GN0					G60	110.6	266.9	200.4
								146.5	300.6	235.7
		GN8	21,000 lbs. (9,525 Kg)		G68 or w/o G68		w/o G60	146.5	300.7	232.2
								149.2	305.2	234.9
		GR9					G60	149.1	305.1	238.1
					G68		w/o G60	116.0	272.3	207.0
							G60	116.0	272.3	210.2
							w/o G60	50.0	184.9	131.9
HXC	16,900 lbs. (7,670 Kg)	GZH	12,000 lbs. (5,440 Kg)							
		GG0	15,000 lbs. (6,800 Kg)		G68 or w/o G68	GN1 or w/o GN1	G60	126.6	280.6	203.2
							w/o G60	126.6	280.7	199.9
		GQ0			G68		G60	105.4	251.7	177.7
						GN1	w/o G60	105.4	251.7	169.7
		GG7	16,900 lbs. (7,666 Kg)			GN1 or w/o GN1	G60	—	—	—
							w/o G60	65.6	179.3	125.4
		G40	19,000 lbs. (8,620 Kg)		—	—	—	50.3	128.0	128.0
		GN2			G68	GN1	w/o G60	113.6	269.9	194.5
						GN1 or w/o GN1	G60	113.6	269.9	200.4
		GN0			G68 or w/o G68			129.5	283.6	214.7
							w/o G60G60	129.6	283.7	210.5
		GR9	21,000 lbs. (9,525 Kg)		G68			119.0	275.3	204.6
							G60	119.0	275.3	208.9

MEDIUM DUTY C SERIES

Axle		Suspension		Frame	Shock Absorber	Stabilizer	Aux Spring	Dimensions		
RPO	Capacity	RPO	Capacity	RPO	RPO	RPO	RPO	B	C	D
HZT HXB	17,850 lbs. (8,100 Kg)	GG7	16,900 lbs. (7,666 Kg)	FDO FD5	G68	GN1 or w/o GN1	w/o G60	65.6	179.3	129.4
		GP9	17,850 lbs. (8,100 Kg)		G68 or w/o G68	GN1 or w/o GN1	G60	153.1	311.3	240.5
							w/o G60	153.1	311.3	237.1
		G40	19,000 lbs. (8,620 Kg)		—	—	—	134.1	210.8	210.8
		GN0			G68 or w/o G68	GN1 or w/o GN1	w/o G60	129.6	283.7	207.2
							G60	129.6	283.7	212.0
		GN2			G68			113.6	269.9	196.6
		GN8	21,000 lbs. (9,525 Kg)			GN1	w/o G60	113.6	269.9	189.6
								132.0	288.4	210.6
							G60	132.1	288.4	215.2
		GR9				GN1 or w/o GN1		119.1	275.4	205.8
							w/o G60	119.0	275.4	200.7
		GP0	23,000 lbs. (10,430 Kg)					115.3	271.6	202.2
							G60	115.3	271.6	205.5
		GP1	23,500 lbs. (10,660 Kg)		G68 or w/o G68			153.1	311.3	240.5
							w/o G60	153.1	311.3	237.1
H11 HPK HPM	19,000 lbs. (8,620 Kg)	G40	19,000 lbs. (8,620 Kg)		—	—	—	134.1	210.8	210.8
		GN2			G68	GN1	w/o G60	113.6	269.9	183.6
						GN1 or w/o GN1	G60	112.9	285.6	190.6
		GN0			G68 or w/o G68		w/o G60	129.5	283.7	203.0
							G60	129.5	283.7	208.5
		GR9	21,000 lbs. (9,525 Kg)		G68		w/o G60	119.1	275.4	196.2
							G60	119.0	275.4	202.1
		GN8			G68 or w/o G68			132.1	288.4	212.2
							w/o G60	132.0	288.4	207.0
		GP0	23,000 lbs. (10,430 Kg)		G68			115.3	271.6	197.9
							G60	115.3	271.6	201.9

C7H042 Rear Axle Chart, Suspension Dimensions

Axle		Suspension		Frame	SHOCK ABS.	Stabilizer	Aux. Spring	Dimensions		
RPO	Capacity	RPO	Capacity	RPO	RPO	RPO	RPO	B	C	D
HXC	16,000 lbs. (7,670 Kg)	GN2	19,000 lbs. (8,620 Kg)	FDO FD5 F02	G68	GN1	w/o G60	113.6	269.9	194.5
						GN1 or w/o GN1	G60	113.6	269.9	200.4
		GN0			G68 or w/o G68			129.5	283.6	214.7
							w/o G60	129.6	283.6	210.5
HZT HXB	17,850 lbs. (8,100 Kg)	G40	19,000 lbs. (8,620 Kg)		—	—	—	134.5	211.2	211.2
		GN2			G68	GN1	w/o G60	113.6	269.9	189.6
						w or w/o GN1	G60	113.6	269.9	196.6
		GN0			G68 or w/o G68	GN1 or w/o GN1		129.6	283.7	212.0
		GN8	21,000 lbs. (9,525 Kg)				w/o G60	129.6	283.7	207.2
								132.0	288.4	210.6
		GR9					G60	132.1	288.4	215.2
					G68			119.1	275.4	205.8
		GP0	23,000 lbs. (10,430 Kg)				w/o G60	119.0	275.4	200.7
								115.3	271.6	202.2
							G60	115.3	271.6	205.5
		GP1			G68 or w/o G68			153.1	311.3	240.5
							w/o G60	153.1	311.3	237.1
H11 H17 HPK HPL HPM	19,000 lbs. (8,620 Kg)	G40	19,000 lbs. (8,620 Kg)		—	—	—	134.5	211.2	211.2
		GN2			G68	GN1	w/o G60	113.6	269.9	183.6
						GN1 or w/o GN1	G60	112.9	285.6	190.6
		GN0			G68 or w/o G68		w/o G60	129.5	283.7	203.0
							G60	129.5	283.7	208.5
		GP0	23,000 lbs. (10,430 Kg)		G68		w/o G60	115.3	271.6	197.9
							G60	115.3	271.6	201.9
		GP1			G68 or w/o G68			153.1	311.3	237.6
							w/o G60	153.1	311.3	233.9
		GYN			w/o G68	w/o GN1	GYH	151.1	284.4	222.0
							w/o GYH	134.3	284.4	212.0
		GN8	21,000 lbs. (9,525 Kg)		G68 or w/o G68	GN1 or w/o GN1	G60	132.1	288.4	212.2
							w/o G60	132.0	288.4	207.0

MEDIUM DUTY C SERIES

Axle		Suspension		Frame	SHOCK ABS.	Stabilizer	Aux. Spring	Dimensions		
RPO	Capacity	RPO	Capacity	RPO	RPO	RPO	RPO	B	C	D
H11 H17 HPK HPL HPM	19,000 lbs. (8,620 Kg)	GR9	21,000 lbs. (9,525 Kg)	FDO FD5 F02	G68	GN1 or w/o GN1	w/o G60	119.1	275.4	196.2
							G60	119.0	275.4	202.1
								119.1	275.4	196.3
							w/o G60	119.1	275.4	189.0
		GN8			G68 or w/o G68			132.9	288.6	201.0
							G60	132.7	288.4	206.8
HPP H15 HPN	21,000 lbs. (9,525 Kg)	GP0	23,000 lbs. (10,430 Kg)		G68	GN1	w/o G60	115.3	271.6	191.5
						GN1 or w/o GN1	G60	115.9	272.2	197.2
		GP1			G68 or w/o G68			153.1	311.3	233.1
							w/o G60	153.1	311.3	228.7
		GYN			w/o G68	w/o GN1	GYH	156.0	289.4	222.6
							w/o GYH	134.3	283.3	205.1
HQR HPG HPH HPF	22,000 lbs. (10,000 Kg)	GP0			G68	GN1	w/o G60	115.3	271.6	188.0
						GN1 or w/o GN1	G60	115.3	271.6	193.7
		GP1			G68 or w/o G68			153.1	311.3	230.6
							w/o G60	153.1	311.3	225.8
		GYN			w/o G68	w/o GN1		139.2	289.4	208.1
							G60	144.2	289.4	217.8
							w/o GYH	139.2	289.4	208.1
							GYH	156.0	289.4	220.3
HWH H14	23,000 lbs. (10,430 Kg)	GP0			G68	GN1	w/o G60	115.3	271.6	185.2
						GN1 or w/o GN1	G60	115.2	271.6	191.3
		GP1			G68 or w/o G68			153.2	311.3	228.7
							w/o G60	153.1	311.3	223.5
HPQ H20 HNA HNG		GP0			G68	GN1		120.3	276.6	190.2
						GN1 or w/o GN1	G60	120.2	276.6	196.3
		GP1			G68 or w/o G68			158.2	316.3	233.7
							w/o G60	158.1	316.3	228.5
		GYN			w/o G68	w/o GN1		139.3	289.5	205.5
							G60	144.8	289.4	215.9
							w/o GYH	139.3	289.5	205.5
							GYH	156.0	289.4	218.2
HVQ GJ4	26,000 lbs. (11,800 Kg)	GP0			G68	GN1	w/o G60	120.3	276.6	190.2
							G60	120.2	276.6	196.3
		GQ3	31,000 lbs. (13,950 Kg)		w/o G68	w/o GN1	w/o GG8	179.3	318.1	237.3

MEDIUM DUTY C SERIES

Axle		Suspension		Frame	SHOCK ABS.	Stabilizer	Aux. Spring	Dimensions		
RPO	Capacity	RPO	Capacity	RPO	RPO	RPO	RPO	B	C	D
HPA	26,000 lbs. (11,800 Kg)	GP8	27,000 lbs. (12,150 Kg)		G68 or w/o G68	GN1 or w/o GN1	GG8	179.3	318.1	236.5
	26,000 lbs. (11,800 Kg)	GP8	27,000 lbs. (12,150 Kg)	FDO FD5 F02	G68 or w/o G68	GN1 or w/o GN1	w/o GG8	163.4	318.1	230.1
		GP1	23,500 lbs. (10,575 Kg)				W/GG8 w/o G60	174.1	317.8	237.6
							W/GG8 w/o G60	158.1	317.7	233.6
		GQ3	31,000 lbs. (13,950 Kg)		w/o G68	w/o GN1	w/o GG8	179.3	318.1	237.3
HPB	30,000 lbs. (13,500 Kg)	GP8	31,000 lbs. (13,950 Kg)		G68 or w/o G68	GN1 or w/o GN1	GG8	179.3	318.1	236.5
							w/o GG8	162.4	317.1	229.1
		GP1	23,500 lbs. (10,575 Kg)				w/GG8 w/o G60	174.1	317.8	237.6
							w/o GG8 w/G60	158.1	317.7	233.6
		GQ3	31,000 lbs. (13,950 Kg)		w/o G68	w/o GN1	w/o GG8	179.3	318.5	236.5

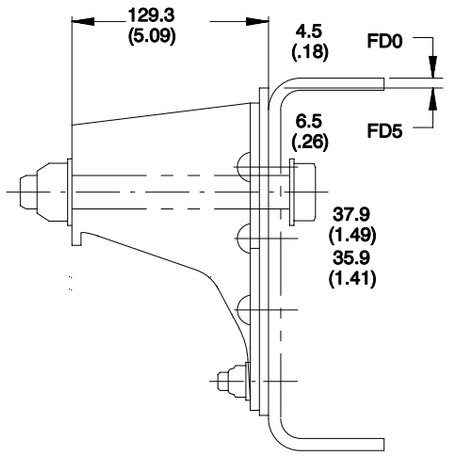
C6/7H000 Rear Axle Chart, Track Dimensions

Brakes	Cast Wheel		
RPO	RPO	Track	Axle
JE3	QK4 RBS RCD QM2	1810.2	H10
JE3 JE4	Q61 QK2 QK4 QM2 QM7 RBS RCD	1828.4	H11 H17 HZD HZG HZH HZT HZW
JE3 JE4	Q61 QJ4 QK2 QK4 QM2 QM7 RCD	1825.9 1829.3	H12 H18 HPX HPY HZL
JE4	Q61 QJ4 QK2 QK4 QM2 QM7 RCD		GJ4 H13 H19 HNA HNG HPW HVQ HWH
	Q61 QJ4 QK2 QK4 QM2 QM7	1829.3	H14
	QM5 QM7	1814.0	HPA
	QM5	1866.9	HPB

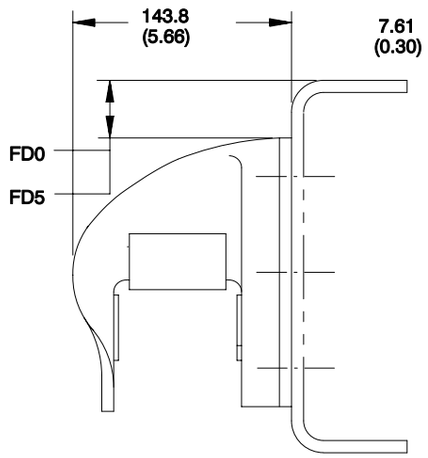
Brakes	Cast Wheel		
RPO	RPO	Track	Axle
JE3	QH4	1833.4	H10 H16
	Q81 Q83 Q89	1836.5	
	Q83 RPW	1821.1	HWY HZW
	Q85 QH2 QK6 RAV RCF RLF	1817.9	H11 H17 HWY HZD HZH HZT HZW
	QM9	1819.5	
	RND	1820.2	
	Q81 Q89 RCY RPR RRT	1821.1	
	RPN	1822.9	
	RPT RPV	1846.4	
	RBP	1847.9	
	QH2 QK6 RCF RLF	1815.0	H12 H18 HPX HPY HZL
	QM9	1816.6	
	RND	1817.3	
	RCY RPL RRT	1818.2	
	RPV	1843.5	
	RBP	1845.0	

Brakes	Cast Wheel		
RPO	RPO	Track	Axle
JE4	RCF QH2 QK6 RLF RAV	1827.1	HWY HZD HZG HZH HZT HZW H11 H17
	QM9 RRU	1828.7	
	RND	1829.4	
	RCY RPL RPR RRT	1830.3	
	RNL	1831.1	
	RPN	1832.1	
	RPT RPV	1855.6	
	RBP	1857.1	
	QH2 QH4 QK6 RCF RLF	1820.2	GJ4 HNA HNG HPW HPX HPY HVQ HWH HZL H12 H13 H18 H19
	QM9 RRU	1821.8	
	RND	1822.5	
	RCY RPL RPR RRT	1823.4	
	RNL	1824.2	
	RPN	1825.2	
	RPT RPV	1848.7	
	RBP	1850.2	
	QH2 RLF	1823.3	H14
	QM9	1824.9	
	RND	1825.6	
	RCY RPL RRT	1826.4	
	RNL	1827.2	
	RBP	1853.3	
	QH4	1829.3	HPA
	RPR	1832.4	

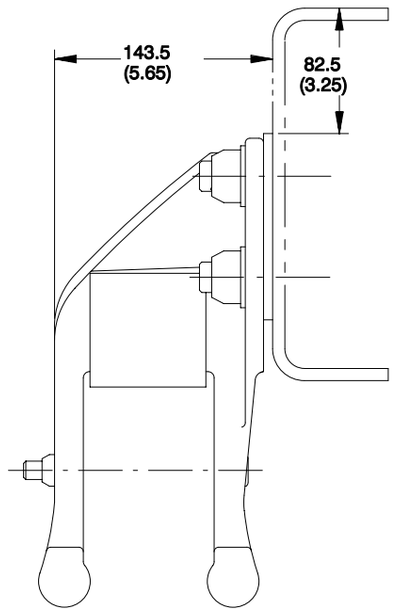
C6/7H000 Rear Spring Hanger Brackets



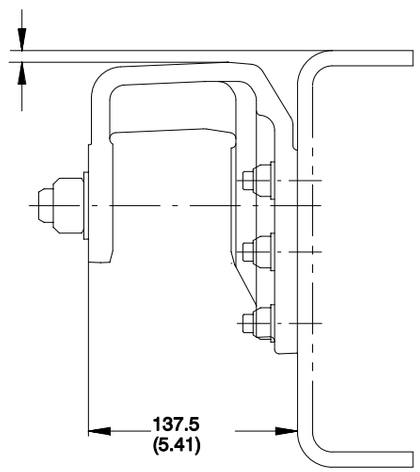
FRAME: FD0/FD5 (STAMPED BRKT)
RPO: GG7/GN2/GP0/GP6/GP7/GQD/
GR9/GZH (TAPER LEAF)



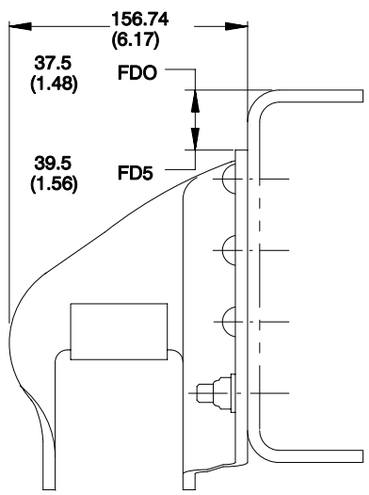
FRAME: FD0/FD5 (STAMPED BRKT)
RPO: GYN (RADIUS LEAF)



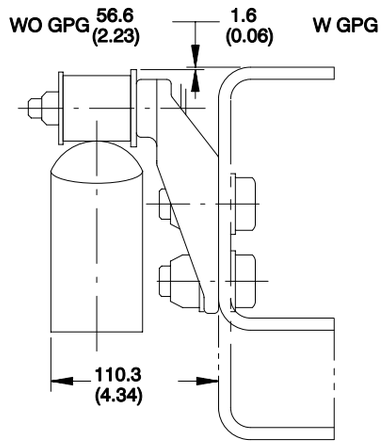
FRAME: FD5 (CAST BRKT)
RPO: G40 W/O F08 (AIR)



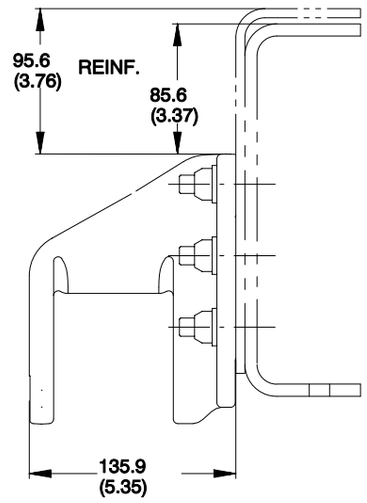
FRAME: F02 (CAST BRKT)
RPO: GP0/GR9/GN2
(TAPER LEAF)



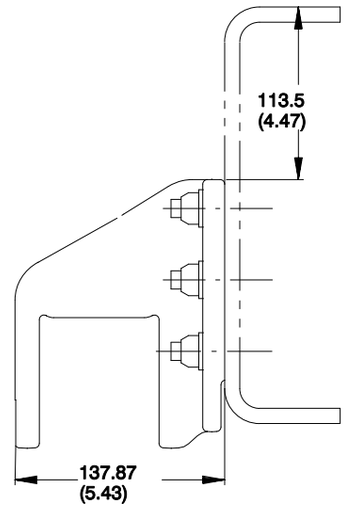
FRAME: FD0/FD5 W/O FSA (STAMPED BRKT)
RPO: GG0/GN0/GN8/GP1 (MULTI-LEAF)



FRAME: FD5 (CAST BRKT)
RPO: G40 W/WO GPG WO F08 (AIR)

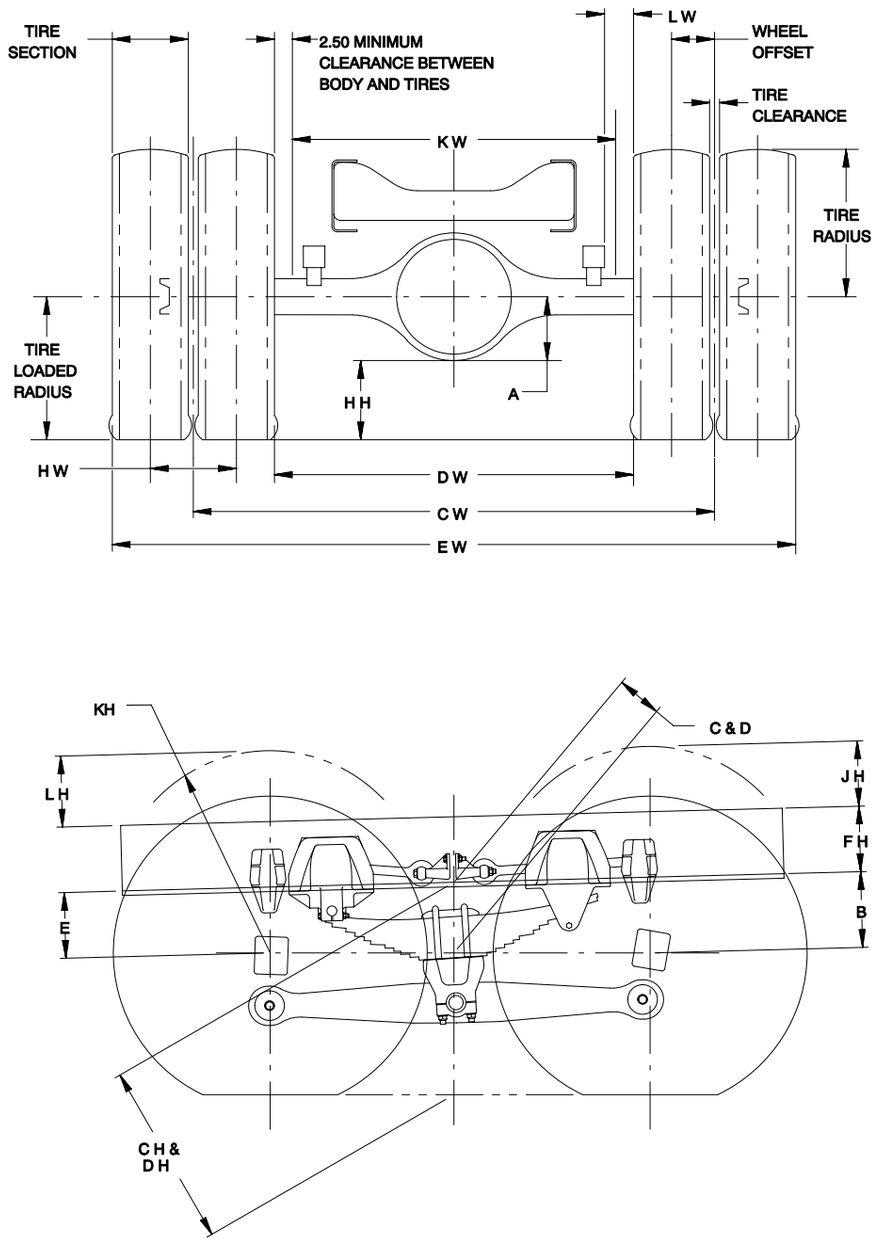


FRAME: FD5 WITH FSA (CAST BRKT)
RPO: GG0/GN0/GN8/GP1 (MULTI-LEAF)



FRAME: F02 (CAST BRKT)
RPO: GN8/GP1/GN0 (MULTI-LEAF)

C7H064 Tandem Axle Chart Formula



Definitions:

A – Centerline of axle to bottom of axle bowl

B – Centerline of rear axle to bottom inside rail at metal to metal position

C – Centerline of axle to bottom inside rail at centerline of equalizer beam at curb position

D – Centerline of axle to bottom inside rail at centerline of equalizer beam at design position

E – Centerline of front axle to bottom inside rail at metal to metal position

CH – Rear Frame Height
Distance between the bottom inside rail and the ground-line through the vertical centerline of the rear axle at curb position.

DH – Rear Frame Height
Distance between the bottom inside rail and the ground-line through the vertical centerline of the rear axle at design position.

HH – Rear Axle Clearance
Minimum clearance between the rear axle and the ground-line.

JH – Rear Tire Clearance
Minimum clearance required for tires and chains measured from the top of the frame at the vertical centerline of the rear axle.

KH – Chain Clearance

LH – Distance from the bottom inside rail to the top of rail.

CW – Track Dual Wheel Vehicles
Distance between the centerlines of the dual wheels as measured at the ground-line.

DW – Minimum distance between the inner surfaces of the rear tires.

EW – Maximum Rear Width
Over-all width of vehicle measured at the outer most surface of the rear tires.

HW – Dual Tire Spacing
Distance between the centerlines of the tires in a set of dual tires.

KW – Rear Body Width
Maximum body width between rear tires.

See Tire Chart for values: Selection, Radius, Loaded Radius and Clearance

Formulas for calculating rear width and height dimensions:

CH = Tire loaded radius + C + LH
DH = Tire loaded radius + D + LH
HH = Tire loaded radius – A
JH = KH – B – LH
KH = Tire radius + 3.00 in.
CW = Track
DW = Track – 1 Tire section – HW
EW = Track + 1 Tire section + HW
KW = DW – 5.00 in.
LW = 1.00 in. minimum clearance between tires and springs

NOTE: Track and overall width may vary with optional equipment.

C7H064 Tandem Axle Chart, Track and Suspension Dimensions

TANDEM REAR AXLE					
RPO	CAPACITY	MANUFACTURER	MFG. NO.	SPEED	DIM."A"
HPD	45,000 LBS	EATON	D454P	SINGLE	263.9
HPE	40,000 LBS	EATON	DS404	SINGLE	257.0
HPI	34,000 LBS	EATON	DS344	SINGLE	257.0
HWU	40,000 LBS	EATON	DT402P	TWO	257.0
HPJ	40,000 LBS	EATON	DS404P	SINGLE	257.0

TANDEM REAR SUSPENSIONS					
RPO	CAPACITY	MANUFACTURER	MFG. NO.	BUSHING	BEAMS
GNS	40,000 LBS	HENDRICKSON	RT400	RUBBER	52 INCH
GPR	40,000 LBS	HENDRICKSON	RTE400	BRONZE	52 INCH
GSD	40,000 LBS	HENDRICKSON	RTE400	RUBBER	60 INCH
GSH	34,000 LBS	HENDRICKSON	U340	RUBBER	52 INCH
GSA	45,000 LBS	HENDRICKSON	RT460	RUBBER	54 INCH

CAST WHEEL		
RPO	TRACK	AXLE
QJ4 QK2 QK4 QM2 QM7	1825.4	HPI
	1828.9	HPE HPJ HWU

DISC WHEEL		
RPO	TRACK	AXLE
RCY RRT	1827.3	HPI
	1826.4	HPE HWU HPJ
QH2 QH4 RCF RLF	1824.1	HPI
	1823.2	HPE HWU HPJ
RRU	1825.7	HPI
	1824.8	HPE HWU HPJ
RPV	1852.6	HPI
	1851.7	HPE HPJ

ADD: RND/RNF/RPR

C7H064

AXLE		SUSPENSION		FRAME	DIMENSIONS				
RPO	CAPACITY	RPO	CAPACITY	RPO	B	C	D	E	
HPI	34,000 LBS (15,420Kg)	GSH	34,000 LBS (15,420Kg)	FD5 F02	215.4	296.1	274.9	164.3	WO JXD
								165.3	W JXD
		GPR	40,000 LBS (18,141 Kg)		173.3	282.7	253.2	183.5	
		GNS			212.6	288.4	268.9	164.1	WO JXD
								183.4	W JXD
HPJ	40,000 LBS (18,141 Kg)							164.1	WO JXD
								183.3	W JXD
HWU								183.3	
HPE					212.6	288.4	268.9	183.3	
		GPR			172.4	285.5	251.1	164.6	WO JXD
								183.7	W JXD
		GSD			177.1	256.6	221.4	140.3	WO JXD
								159.5	W JXD
HPD	45,000 LBS (20,412 Kg)	GSA	46,000 LBS (20,866 Kg)		160.1	288.1	264.0	162.7	

Ordering Information

Air Brake system diagrams are available from Chevrolet and GMC through service publications. They have contracted the following companies to handle the ordering and shipping of the manuals.

Helm Inc.
P.O. Box 07130
Detroit, Michigan 48207

1 (313) 865-5000 for information and inquiries
1 (800) 782-4356 for credit card orders

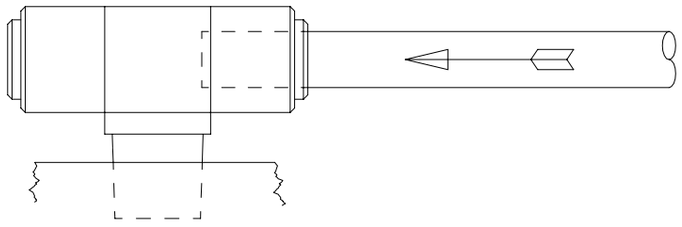
Routine orders will be shipped within 10 days of receipt. Rush orders will be accommodated for an additional charge.

Order forms are available upon request and orders can be paid by check or money order, made payable to the mentioned companies. Credit Card orders can be made by phone on the listed toll free phone numbers.

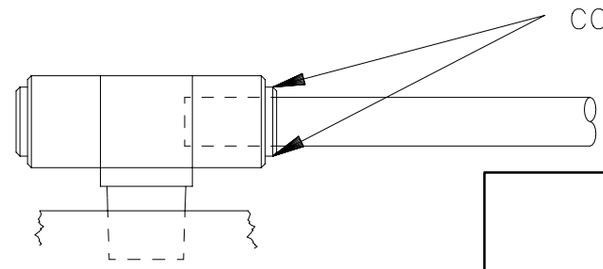
C6/7H000 Removal/Installation of Brake Tubing

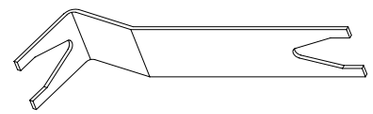
Removal of tube from (Norgren) Fittings

1. Push tubing into fitting.



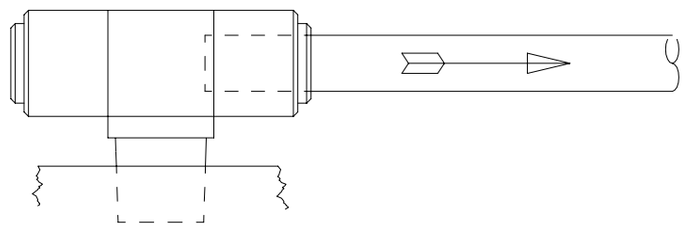
2. Push collet* in.





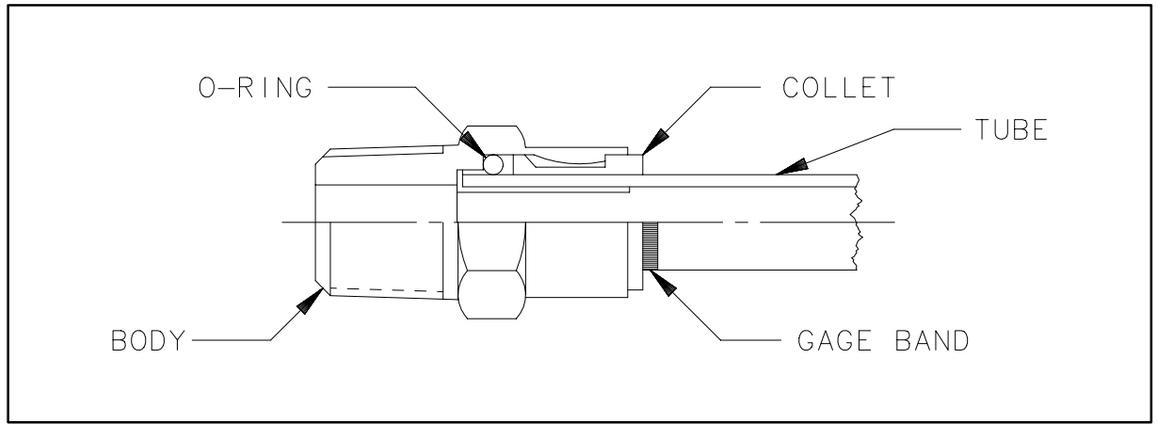
* Norgren tool 54 0001 00 or equivalent can be used to hold collet fully inward

3. While holding collet in withdraw tubing from fitting.



Installation of tube into (Norgren) Fittings

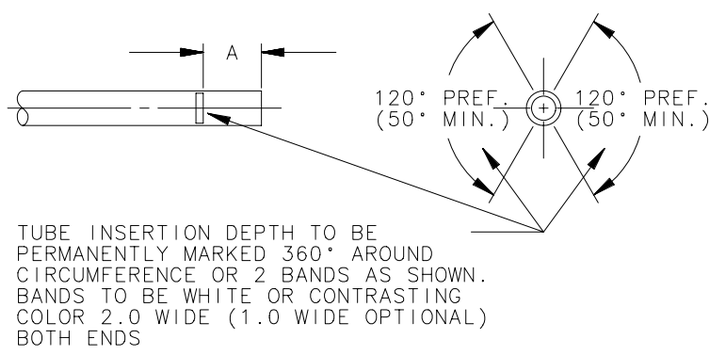
1. Select appropriate size fitting.



2. Select appropriate size and color of tube material.
3. Measure length of tube required, including insertion depth.
4. Tube ends must be cut square within 15° of tube centerline to ensure proper seating in fitting. Do not cut with wire cutters, pliers, pocket knife, etc.

   Tools available to cut tubing : KEN MORE J3820
   SNAP ON YA 1000
   IMPERIAL EASTMAN SNIP 307-FP (1/16-1/2 tube)
5. If gage band has been removed, install new gage band.
   (W.H. Brady Co. B-500 Wire Marker or equivalent)
6. Insert tube into fitting until no tube color is visible between gage band and fitting.
7. Pull tube in outward direction to seat tubing in fitting.

NOTE: Note: The interior of all tubes must be free of water, oil, dirt, chips, paint and other material.



INSERTION TABLE	
TUBE O.D.	A
(3/16") 4.8	15.5
(1/4") 6.4	16.0
(5/16") 7.9	17.0
(3/8") 9.5	20.5
(1/2") 12.7	24.0
(5/8") 15.9	28.5
(3/4") 19.0	28.5

Tube insertion depth gauge band to be permanently market on both ends in 120° segments perferred, 50° optional or a continuous 360° band in white or contrasting color.

Specifications for Replacement Tubes

Material:

- Nylon tubing 5/16 in. O.D. and smaller SAE J844 Type A
- Nylon tubing over 5/16 in. O.D. SAE J844 Type B

RECOMMENDED MINIMUM BEND RADII	
TUBE O.D.	MIN BEND RAD (TO ℄)
3/16"	(1.0") 26.0
1/4"	(1.0") 26.0
5/16"	(1.25") 32.0
3/8"	(1.5") 38.0
1/2"	(2.0") 51.0
5/8"	(2.5") 64.0
3/4"	(3.0") 76.0

Tubing must conform to all applicable requirements of FMVSS 106 of latest issue.

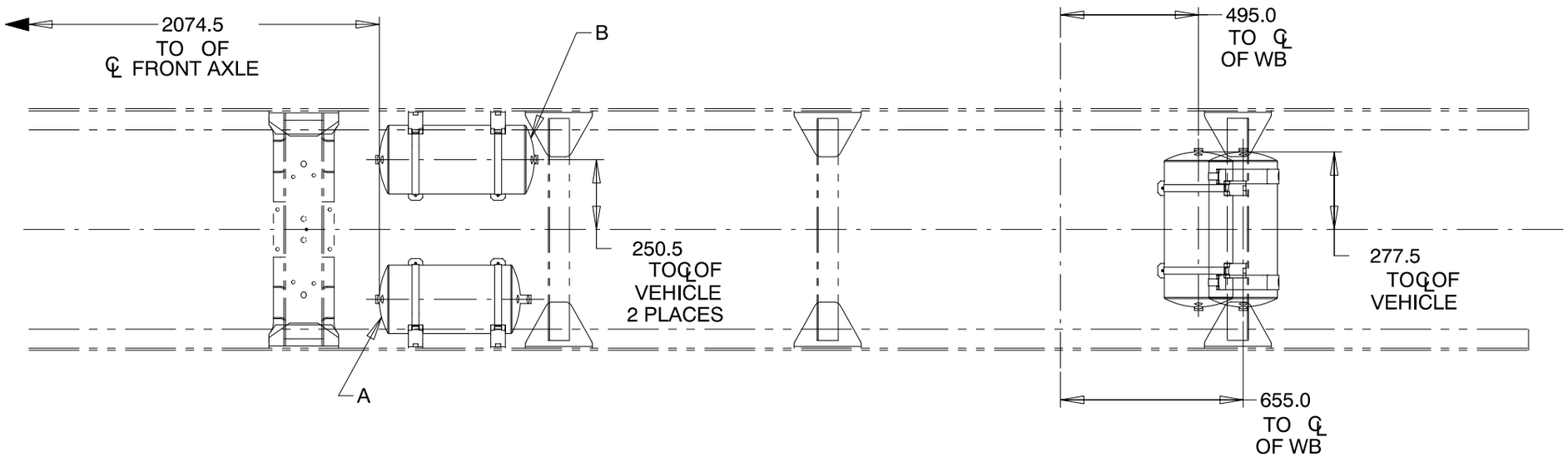
Tubing must include:

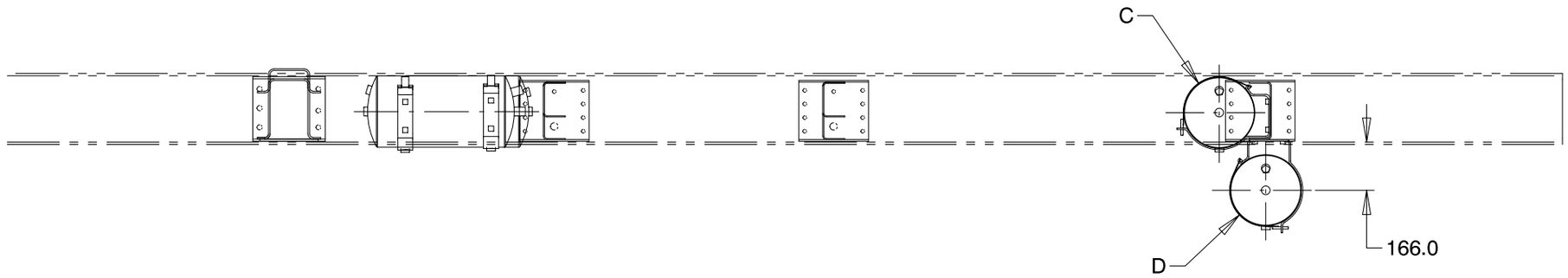
- “Dot Stamp”
- Manufacturer’s name
- “Date of Manufacture”
- “Diameter of Tube”

Note:

1. Do not repair damaged fittings-damaged fittings must be replaced.
2. Do not use a union for 3/4 tubing-if tube is too short, it must be replaced.

C7H042 Air Tank Location



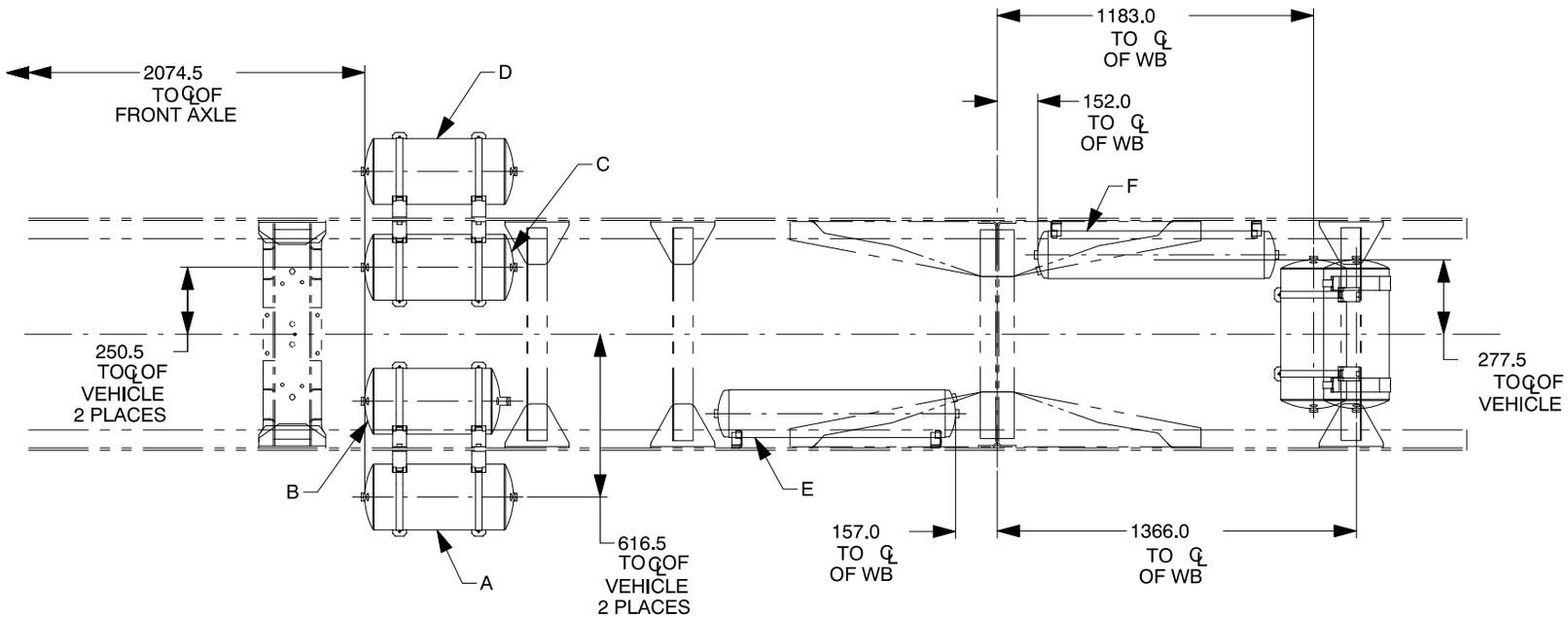


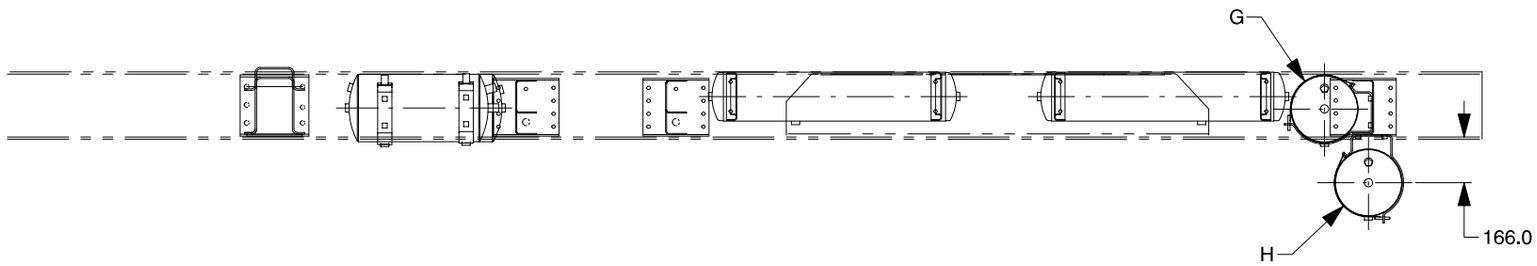
C6/7H042
AIR TANK LOCATION
WO RPO JPX/JTM

VEHICLE APPLICATION	TANK LOCATIONS
RQ2	A,B,C
RQ3	A,B,D

TANK	VOLUME CU CM	VOLUME CU IN	LENGTH	DIA.
A	21,356	1,303	506.0	241.3
B,C,D	23,683	1,445	556.0	241.3

C7H064 Air Tank Location



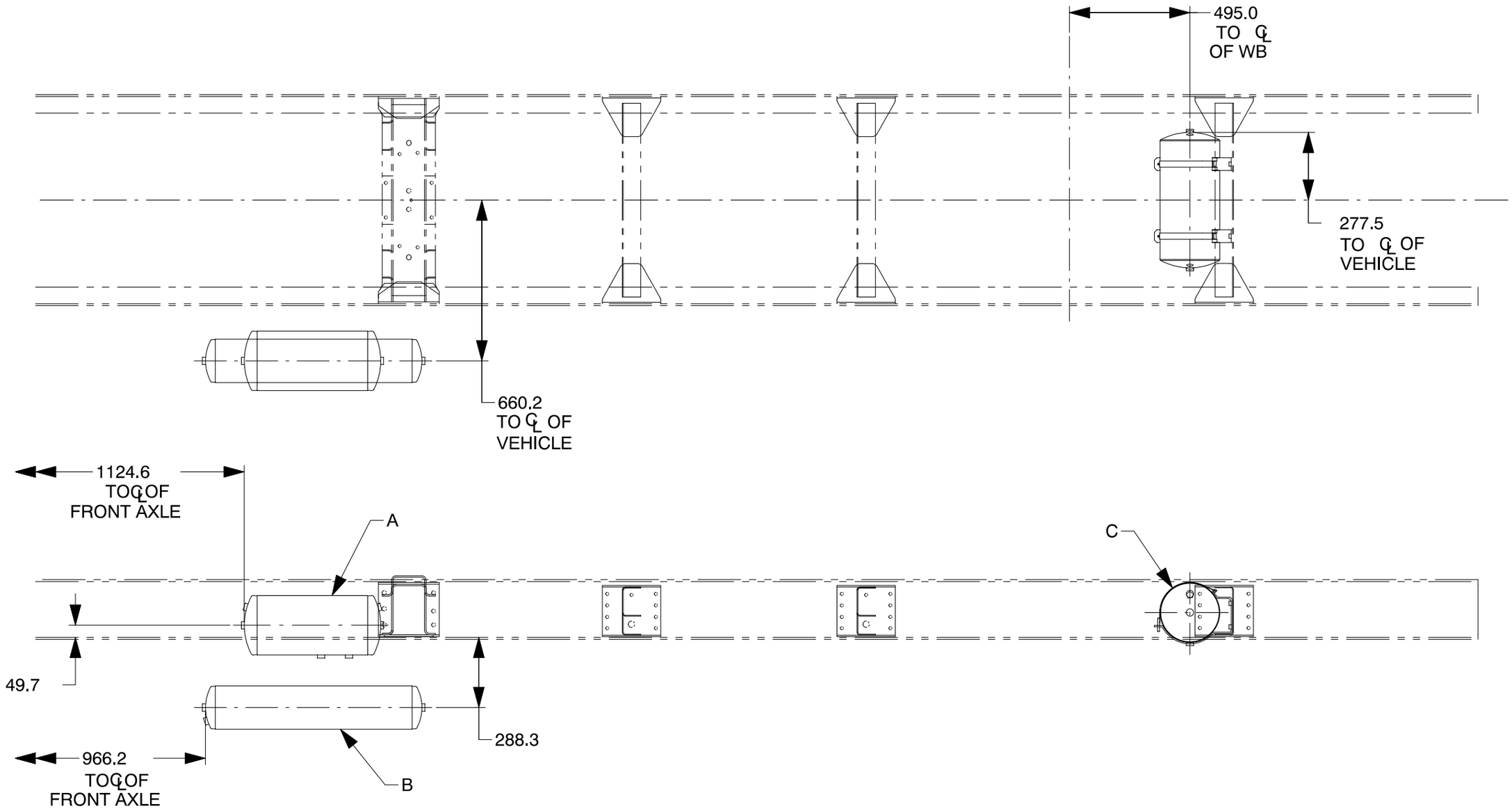


C7H064
AIR TANK LOCATION

REAR SUSPENSION OPTION	VEHICLE APPLICATION	TANK LOCATIONS
GNS/GPR/GSA/GSH	RQ2	B,C,E,F,G
GSD	RQ2	A,B,C,D,G
GNS/GPR/GSH	RQ3	B,C,E,F,H

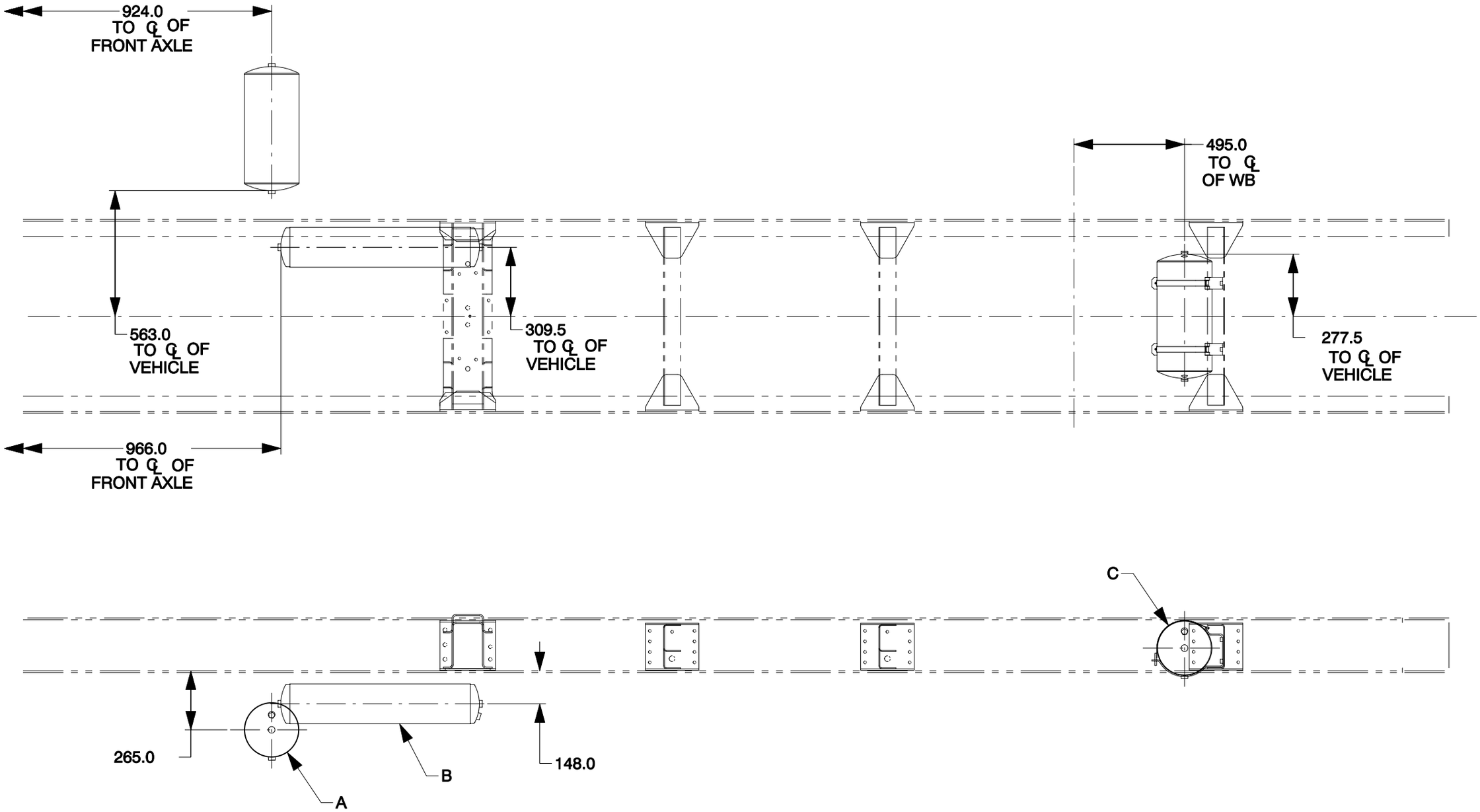
TANK	VOLUME CU CM	VOLUME CU IN	LENGTH	DIA.
A,C,D,G,H	23,683	1,445	556.0	241.3
B	21,356	1,303	506.0	241.3
E,F	20,143	1,229	889.0	174.6

C7H042 Air Tank Location w/JPX (Beverage Truck Application)



TANK	VOLUME CU CM	VOLUME CU IN	LENGTH	DIA.
A,C	23,683	1,445	556.0	241.3
B	20,143	1,229	889.0	174.6

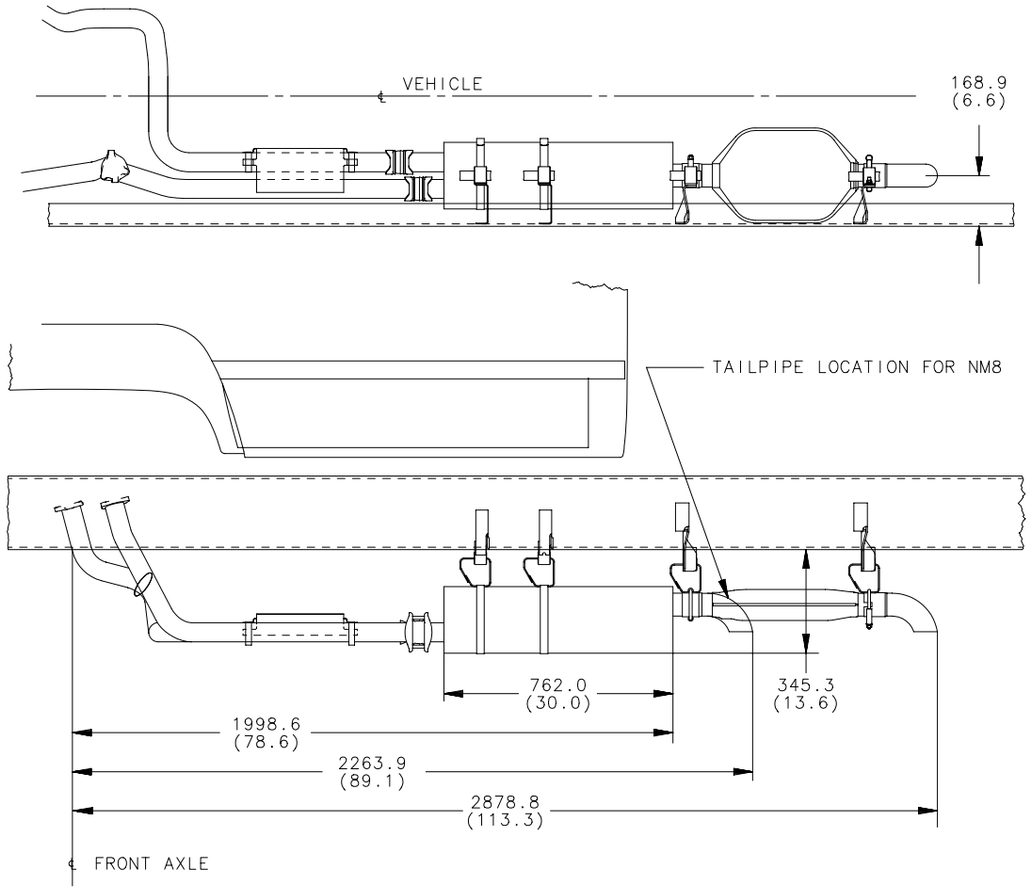
C7H042 Air Tank Location w/JTM



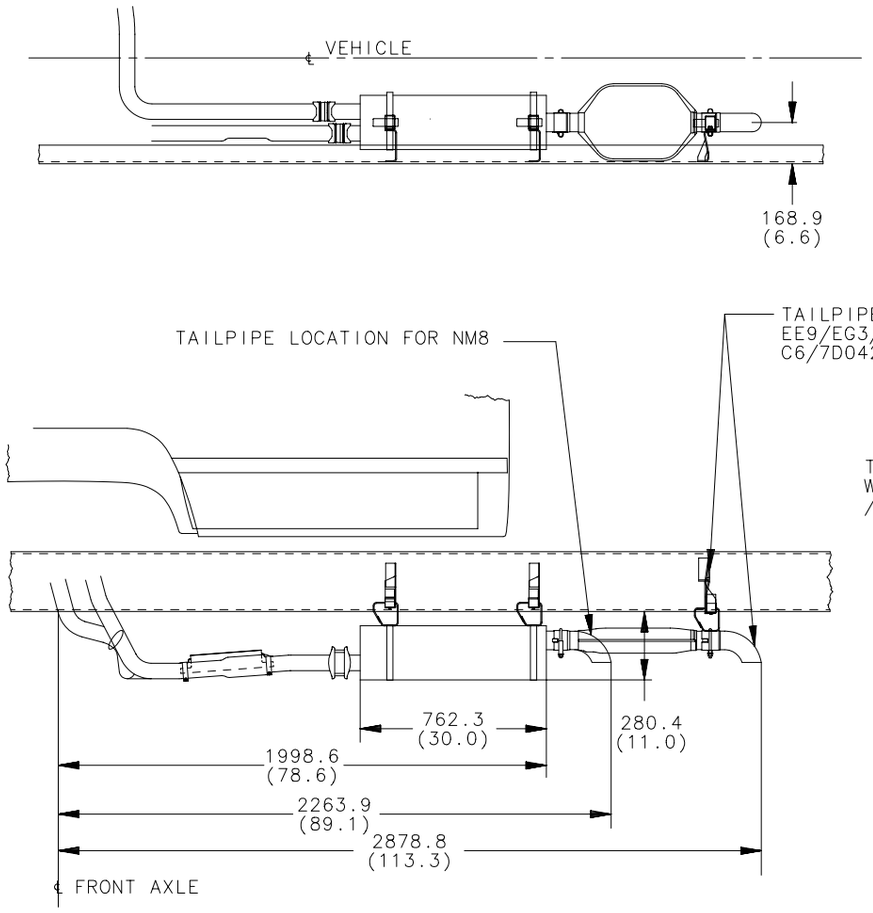
TANK	VOLUME CU CM	VOLUME CU IN	LENGTH	DIA.
A,C	23,683	1,445	556.0	241.3
B	20,143	1,229	889.0	174.6

C6/7H000 Gas Engine, Option NB5

Horizontal

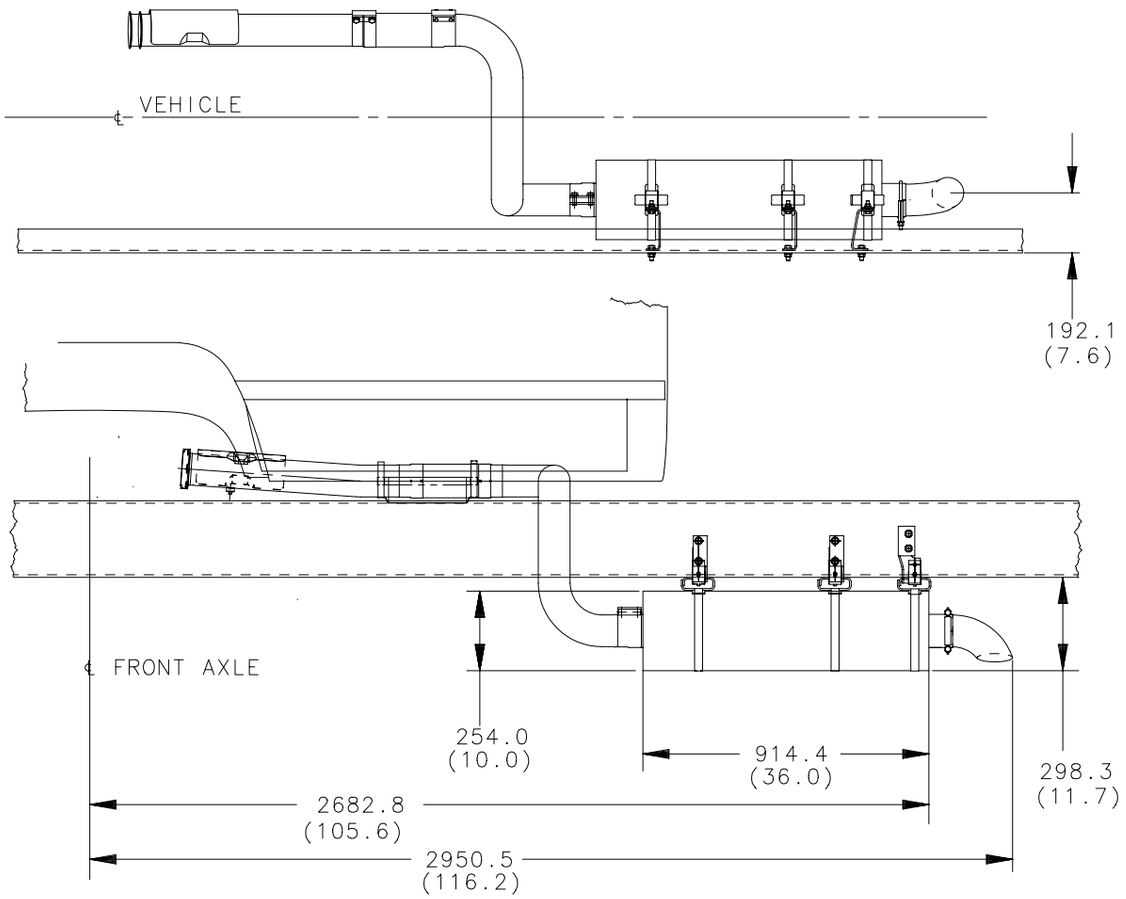


Horizontal with Increased Ground Clearance

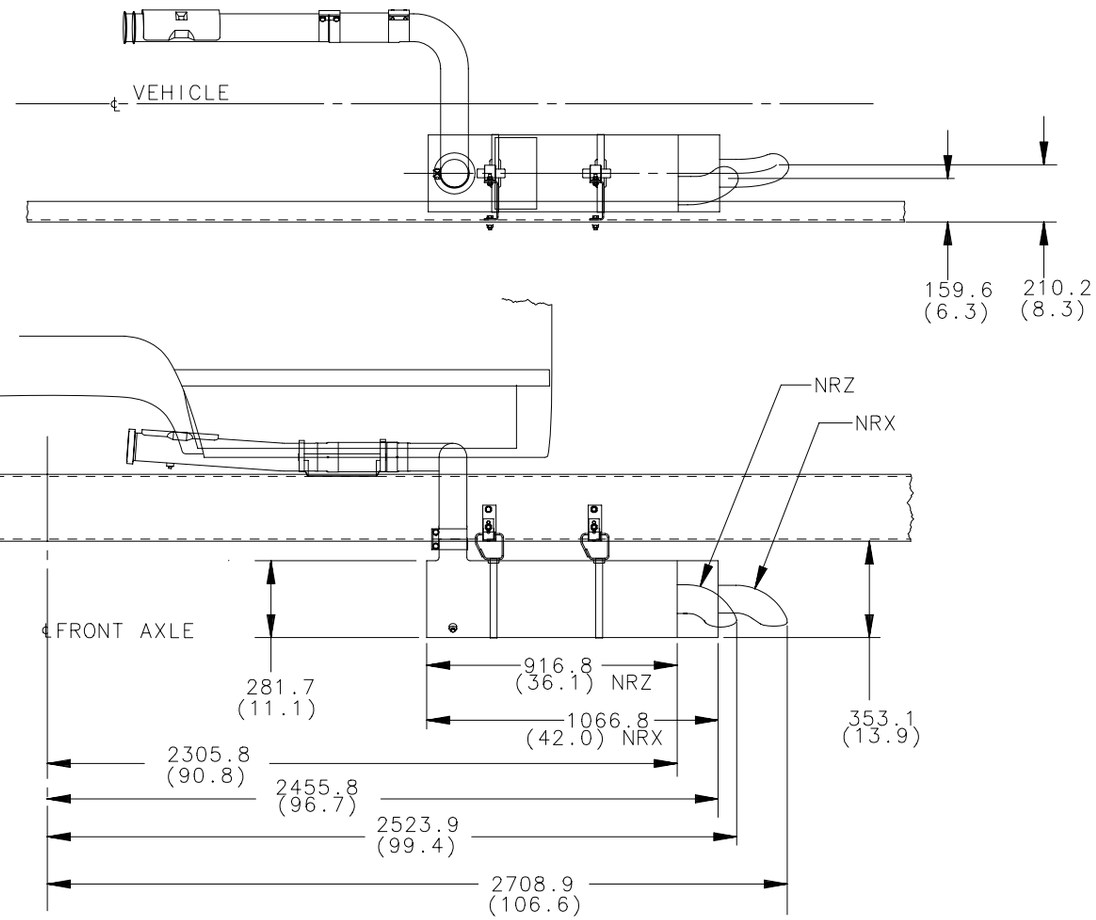


C6/7H000 Diesel Engine, Option NB5 & NWD

Horizontal with Increased Ground Clearance & LVR/LVS/LVX/LVY

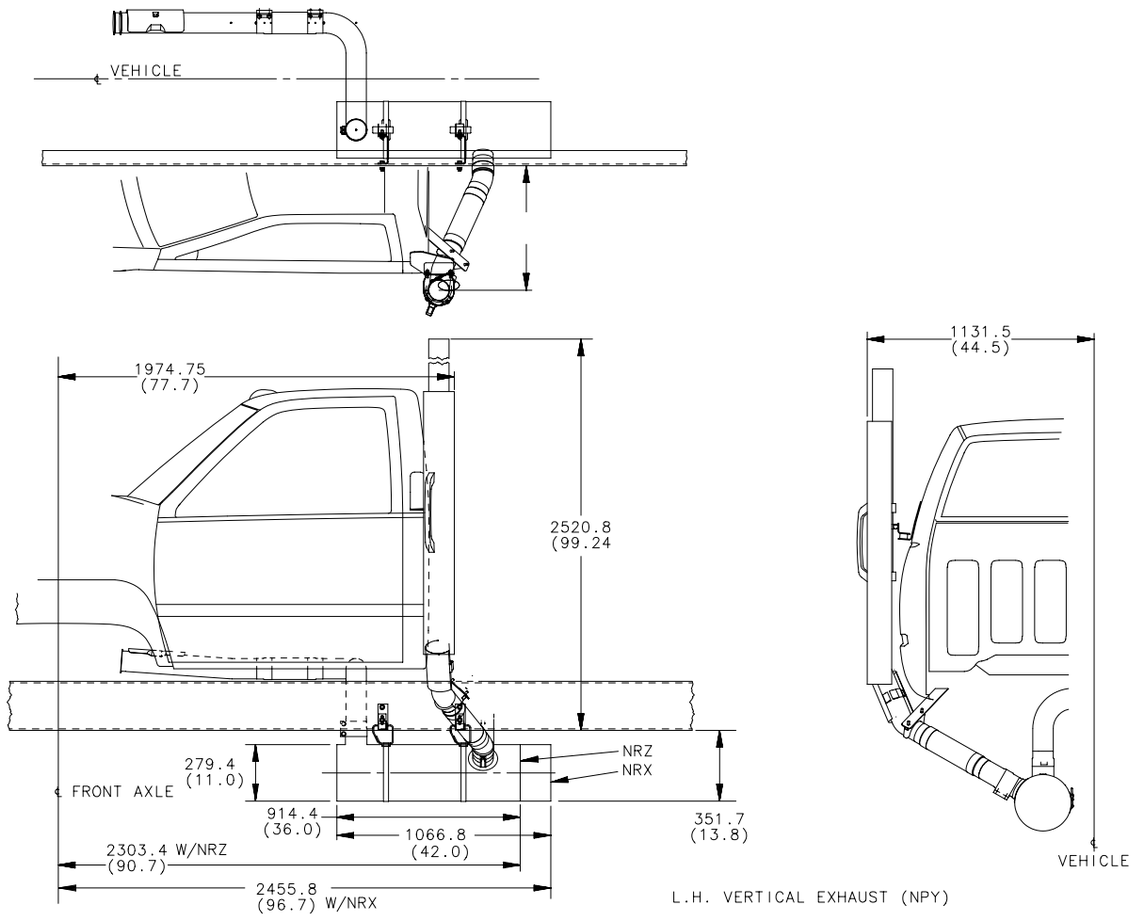


Horizontal with Increased Ground Clearance & LRU/LVZ



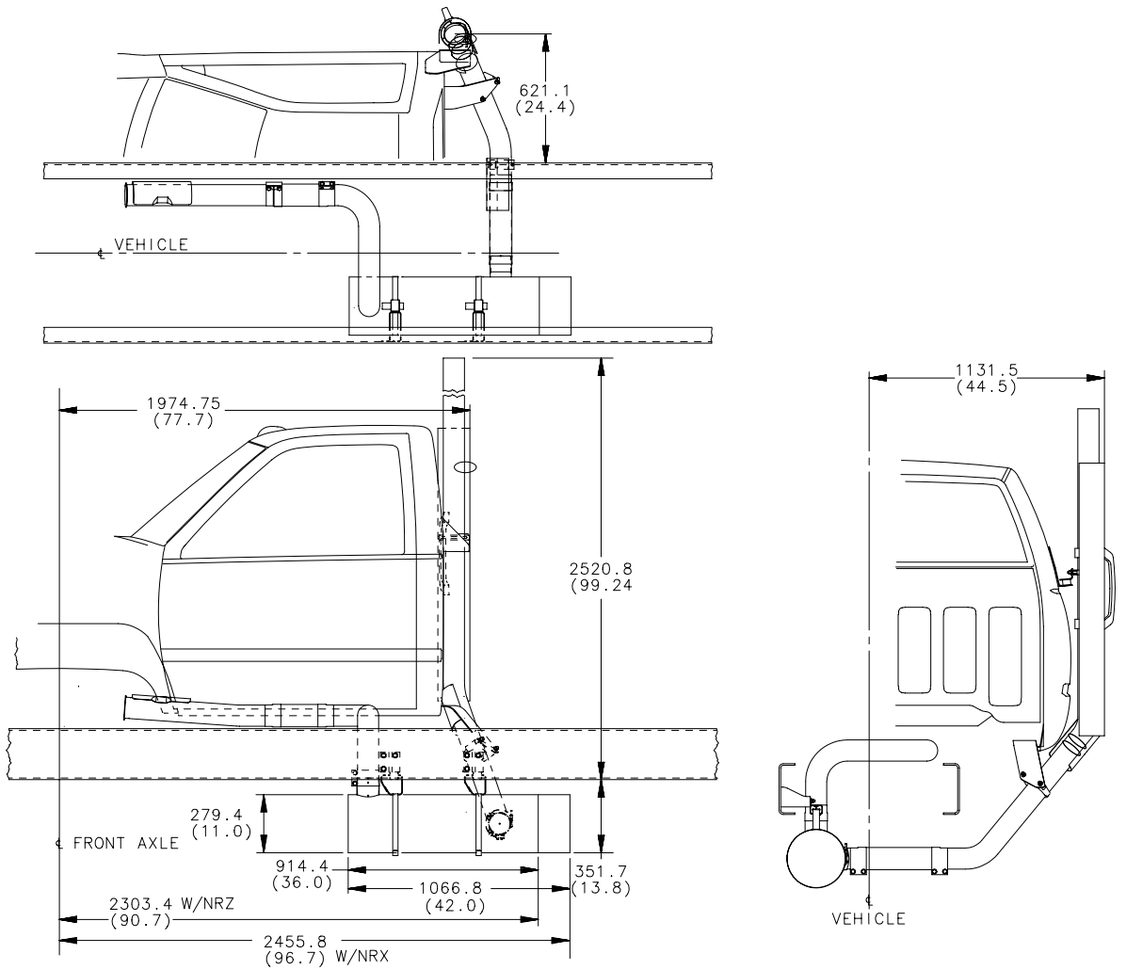
C6/7H000 Diesel Engine, Vertical

Left Hand, Option NPY



L.H. VERTICAL EXHAUST (NPY)

Right Hand, Option NPT



C6/7H000 Body Mounting Information

The methods and practices of body mounting are typical and of importance to prevent frame side rail or body damage caused by unevenly distributed stresses and strains due to load and chassis movement.

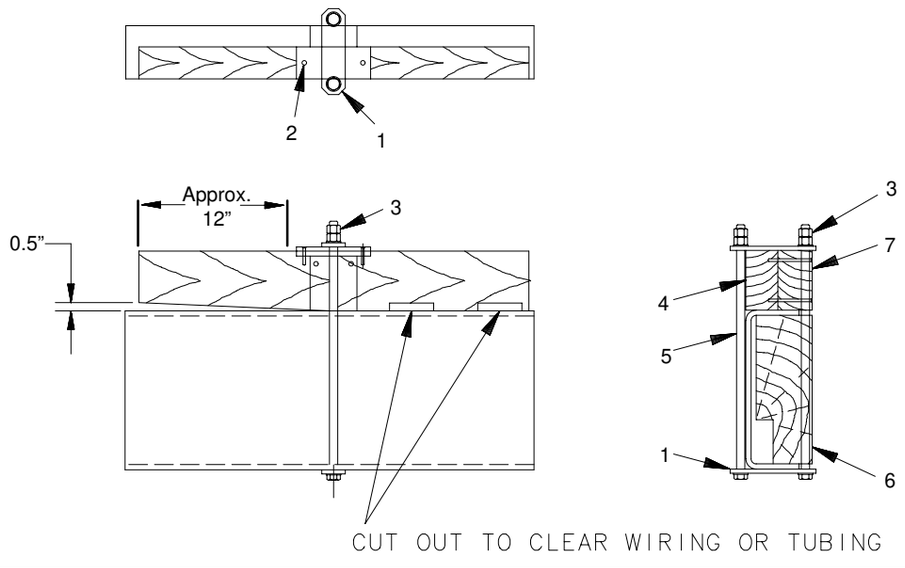
Proper body mounting and/or vehicle specifications can also be critical to maintaining vehicle ride and handling characteristics.

Bodies with Wood or Metal Sill Construction (Stake, Platform and Some Types of Van Bodies)

The following points are important in mounting these torsionally flexible bodies:

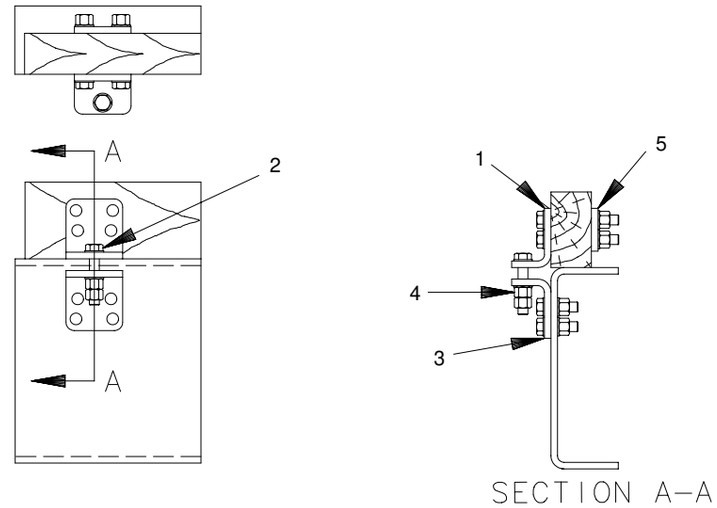
1. Sills should rest directly and squarely on frame side rails. Wood sills must be chamfered 0.5 in. (13 mm) at the front end, tapering to meet the frame approximately 12 in. (300 mm) from front end of sill.
2. Sills must not overhang outside of frame. If wood sill is not as wide as frame flange, install spacer blocks at hold-down. Wood grain of blocks should be parallel (up and down) with hold-down.

1. Clip Plate
2. Metal Channel attach to Sill with Wood Screws or Nails
3. Two Nuts
4. Longitudinal Sill
5. Bolt
6. Filler Block
7. Spacer Block attach to Sill with Wood Screws



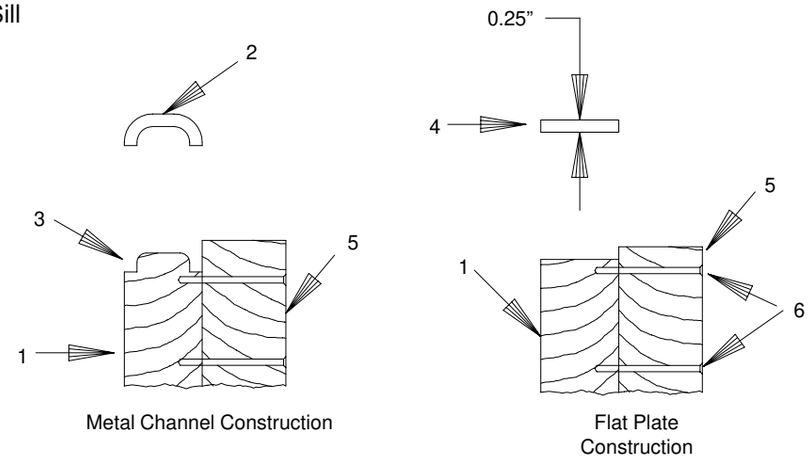
3. Shear bolts (0.5 in. or 13 mm diameter minimum) must be located near rear of body sills. On bodies with wood sill constructed, upper and lower shear bolt brackets must have a clearance of 0.18-0.25 in. (5-6 mm) before final attachment of shear bolt. On bodies constructed with steel sills, upper shear bolt bracket may be bolted or welded to sill. Clearance between upper and lower brackets to be 0.06-0.12 in. (1.5-3 mm) before final attachment of shear bolt. Optional shear bolt installation is acceptable when steel body sills are used.

1. Upper Shear Bolt Bracket
2. Shear Bolt
3. Lower Shear Bolt Bracket
4. Two Nuts
5. Reinforcing Plate



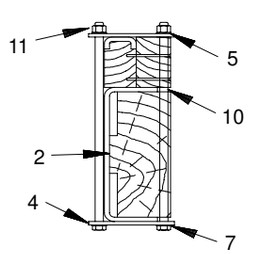
4. Rabbet grooves at top of longitudinal wood sills to permit use of sheet metal channels (1.7 mm or #14 gauge minimum) at each mounting or optional method using 0.25 in. (6 mm) minimum flat plate. Metal channels or flat plate should extend approximately 1 in. (25 mm) beyond clip plate.

1. Longitudinal Wood Sill
2. Metal Channel
3. Rabbet Grooves
4. Flat Plate
5. Wood Sill Spacer
6. Wood Screws

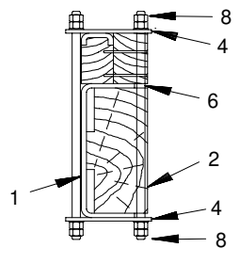


5. On bodies with steel sills, a hardwood spacer not less than 0.75 in. (19 mm) thick (chamfered 0.5 in. (13mm) at front end and tapering to meet frame 12 in. (300 mm) from front end of spacer) must be used between sill and frame side rail (wood spacer is not necessary if body steel sill has required taper.)
6. Mountings must be spaced to clear suspension and any other parts attached to frame side rail. Use two long bolts, studs or "U" bolts 0.5 in. (13 mm) minimum diameter for each mounting. One mounting should be located at the front end of sill (at or as close to rear end of taper as possible), one near rear end of sill and others should be spaced as nearly equal as possible between front and rear mountings. In no instance should frame side rails or crossmembers be mutilated in any way to accommodate mountings.
7. Use clip plates (same thickness as mounting bolt diameter) at top and bottom of mounting bolts. When "U" bolts are used, contour at top of "U' bolt should fit flat against clip plate. Plate may be notched instead of using holes.
8. Use a block of hard, dry wood with grain running up and down between flanges of frame side rail at each mounting. Block should extend beyond width of frame flanges and should be grooved. Mounting bolt fitted into groove will hold block in place. Where steel body sill are used, a similar block is required between sill flanges.
9. Two nuts or one self locking nut must be used at each threaded end of mounting bolts. ***Single nut and lockwasher is not sufficient.*** (In optional tapped plate installation, heavy duty lockwashers must be used under bolt heads.)

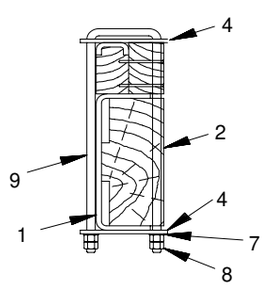
1. Frame Side Rail
2. Filler Block
3. Wood Sill Spacer
4. Clip Plate
5. Tapping Plate
6. Stud
7. Lock Washer
8. Two Nuts
9. "U" Bolt
10. Bolt
11. Self Locking Nut



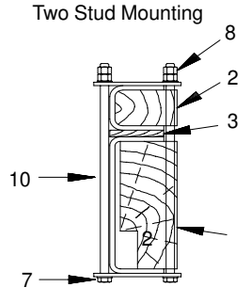
Optional Bolt and Tapped Plate Mounting



Optional Two Stud Mounting



Optional "U" Bolt

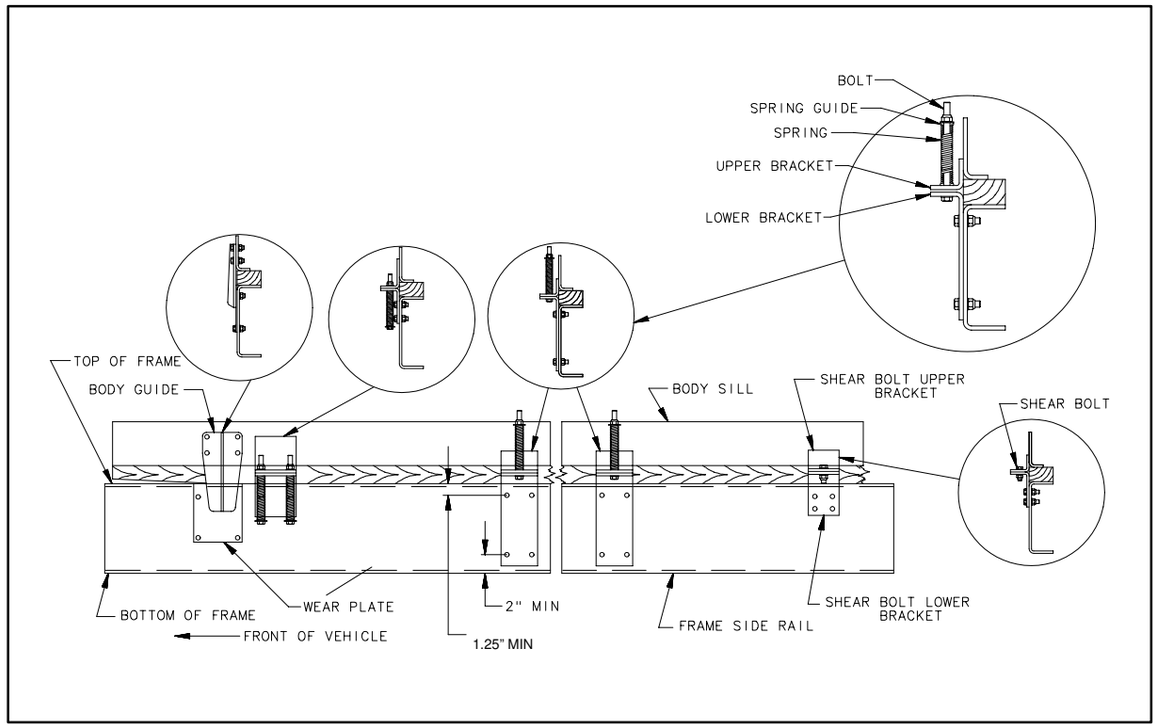


Steel Sill Construction

Torsionally Rigid Bodies
(Tank Bodies and Some Types of Van Bodies)

Due to solid construction, this type of body requires a more flexible mounting. Spring loading of body mountings provides the optimum frame and body life. For this reason the following principles should be followed in mounting a body of this type:

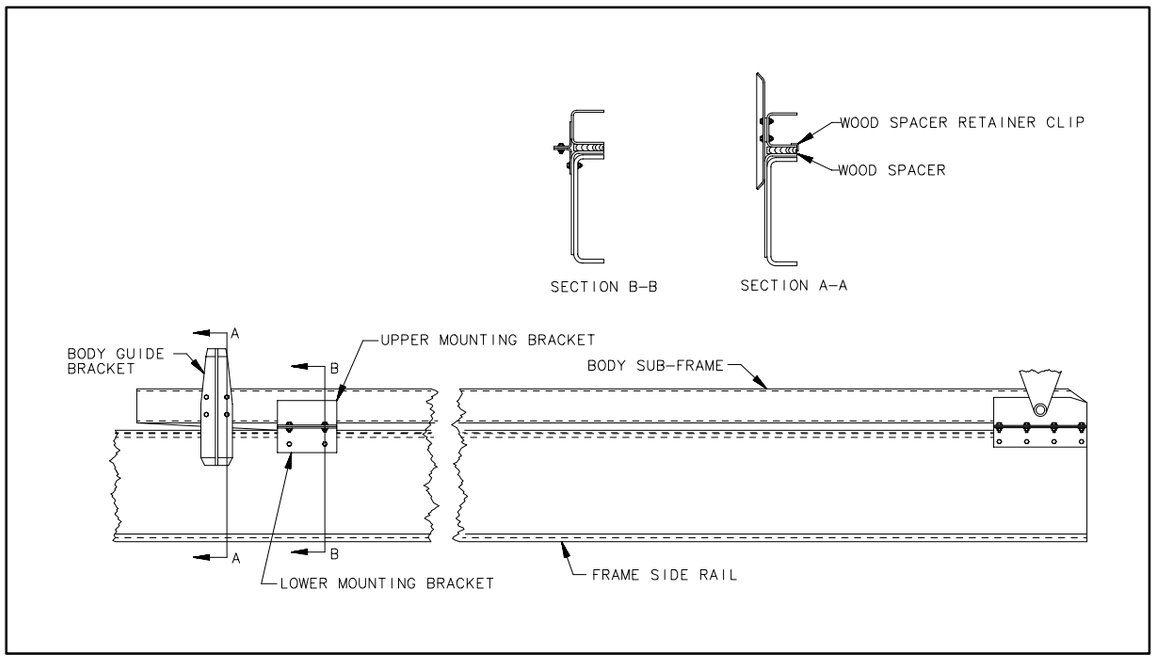
1. A hardwood spacer, not less than 0.75 in. (19 mm) thick, chamfered 0.5 in. (13 mm) at front end and tapering to meet frame approximately 12 in. (300 mm) from front end of spacer, must be used between body sill and frame side rail. (Wood spacer is not necessary if metal body sill has required taper.)
2. A body guide, ribbed for extra strength, should be bolted or welded to body sill near front end of body. It should extend below body sill and contact wear plate bolted to frame side rail. This guide restricts lateral movement of body and thus relieves shear stress on mountings.
3. Mountings are spring loaded angle type, as illustrated. These may be bolted or welded to body sill but must be bolted to frame side rail. ***No welding must be done directly on frame side rail.*** Position mountings to allow a clearance of 0.25 - 0.31 in. (6 - 8 mm) between upper and lower brackets. Use SAE Grade 8 English or10.9 Metric bolts with either self-locking nuts (huglock, flex-lock, shake-proof, elastic or equal) or nuts and heavy duty lockwashers. Spring-loaded mounting bolts require two nuts if self-locking nut is not used. Springs to be as short as practical to allow pre-loading to prevent excessive "Body Roll" in operation and a minimum of 1 - 1.5 in. (25 - 38 mm) at front of body before becoming solid. Trunnion type of body mounting which provides flexibility is acceptable or in place of spring loaded type.
4. Shear bolts (0.5 in. or 13 mm diameter minimum) must be located near rear of body sills. Clearance between upper and lower shear bolt brackets must be 0.06 - 0.12 in. (1.5 - 3 mm) before final attachment of shear bolt.



Dump Bodies

The following points are important in Dump Body Mounting:

1. A hardwood spacer not less than 0.75 in. (19 mm) thick, chamfered 0.5 in. (13 mm) at front end and tapering to meet frame approximately 12 in. (300 mm) from front end of spacer, must be used between body sub-frame and frame side rail. Spacer must also be notched to fit over angle fishplate.
2. Weld a small metal angle to body sub-frame near end of taper to hold wood spacer in place.
3. A body guide, ribbed for extra strength should be bolted or welded to sub-frame near front end of body. It should extend above sub-frame to receive and stabilize front end of dump body, and extend below sub-frame to help control lateral movement of body thus relieve shear stress their mountings. When chassis is not fishplate equipped, body guide should contact a wear plate bolted to frame side rails.
4. Other mountings are simple angle mounts as illustrated. These may be bolted or welded to body sub-frame but must be bolted to side frame rail. ***No welding must be done directly on frame side rail.***
5. Body hinge and rear mounting bracket of body manufacturer's design securely attaches body sub-frame to frame side rail. All mounting brackets to have sufficient clearance before final attachment to insure positive contact of sill to side rail upper flange. This is extremely important since load must be distributed along frame instead of localized on mounting brackets.
6. Use SAE Grade 8 English or 10.9 Metric bolts with either self-locking nuts (huglock, flex-lock, shakeproof, elastic or equal) or nuts and heavy duty washers for attachment of mounting brackets.



Fifth Wheel Mounting

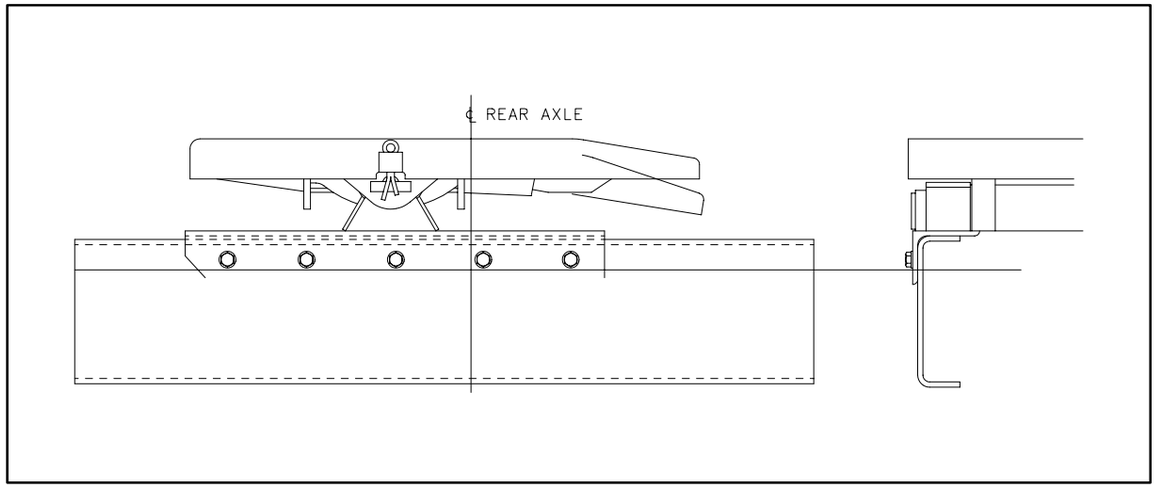
The proper methods of fifth wheel mounting are essential in minimizing stress concentrations that cause damage to frame rails. Welding fifth wheel mounting brackets to frame side rails and altering crossmembers will void warranty on frames.

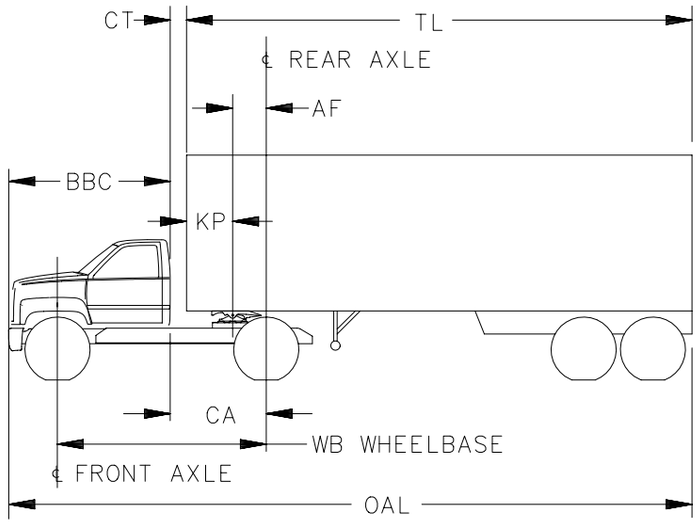
"U" bolts are not a recommended method in mounting fifth wheels.

Guidelines for mounting:

1. The mounting bracketry absorbs stress and spreads the trailer load that transfers through the fifth wheel into the frame rails. Angles and other fabricated mountings should extend ahead of the leading edge of the fifth wheel to help accomplish this.
2. Cutouts in the side mounting angles should be held to a minimum. All cutouts that are required should have a generous corner radius 1 in. (25.0 mm) (minimum). A plate mount is recommended for all liquid load applications.

3. Fasteners used to mount the bracketry and fifth wheel should be SAE grade 8 bolts, prevailing torque nuts and a thru-hardened washer against both seats. A minimum of five 0.625 in. (16 mm) diameter bolts should be used per side for attaching the angle bracket to the frame.
4. Positioning of the fifth wheel is determined by axle distribution load requirements and minimum cab/trailer swing clearance for a given tractor trailer combination. The fifth wheel position should be calculated so that the axle loads do not exceed the GAWRs specified by General Motors.
5. Fifth wheel height, from top of frame side rail, is related to fifth wheel location and type of semi-trailer used to obtain desired tire clearance. This height should provide sufficient clearance with the trailer loaded plus allowance for “Body Roll”. At this time, it is recommended that clearance between the landing gear and outer tire be checked with the trailer in a jackknife position, again allowing sufficient clearance for “Body Roll” when performed on uneven terrain.





FORMULA TO CALCULATE MAXIMUM (AF) DIMENSION

$$AF = \frac{(F1-F2) \times WB}{F3-F4}$$

SEMI-TRAILER SWING RADIUS DIMENSIONS (SR)						
INSIDE BODY NOTE	OUTSIDE CORNER RADIUS (R)	FRONT OF TRAILER TO CENTERLINE KINGPIN (KP)				
		24	30	36	42	48
FLAT	SQUARE	54	56 1/2	60	64	68
FLAT	5 IN	52	55	58	62	66
FLAT	10 IN	50 1/2	53	56	60	64
FLAT	18 IN	59	50 1/2	53	56 1/2	60 1/2
OVAL	OVAL	48	48	48 1/2	50 1/2	53

FORMULAS FOR CALCULATING MINIMUM AND MAXIMUM (CT) DIMENSION

FORMULA MIN. CT=(SR+6")−KP

FORMULA MAX. CT=OAL−(BBC+TL)

EXAMPLE:

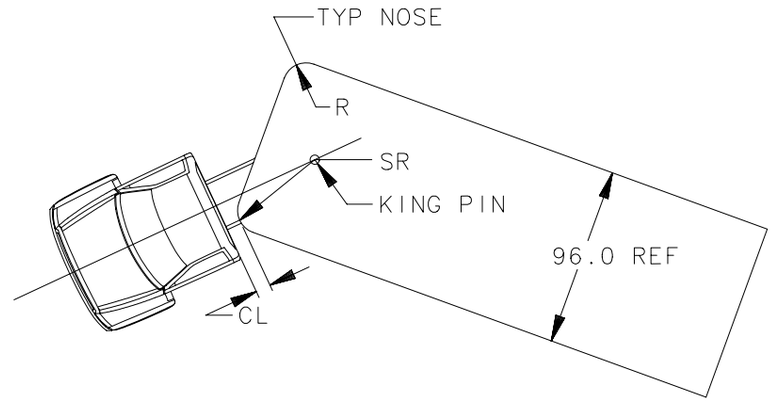
MIN (CT) DIMENSION: DIMENSION (SR) IS OBTAINED FROM TRAILER SWING RADIUS CHART ABOVE, A TRAILER WITH A FLAT NOSE AND 10 INCH CORNER RADIUS WITH KP=36, THEN SR=56.

MIN CT =(56+6)−36
=62−36
MIN CT =26 IN.

MAX (CT) DIMENSION: IF OAL=600, BBC=92 AND TL=480

MAX CT =600−(92+480)
=600−572
MAX CT =28 IN.

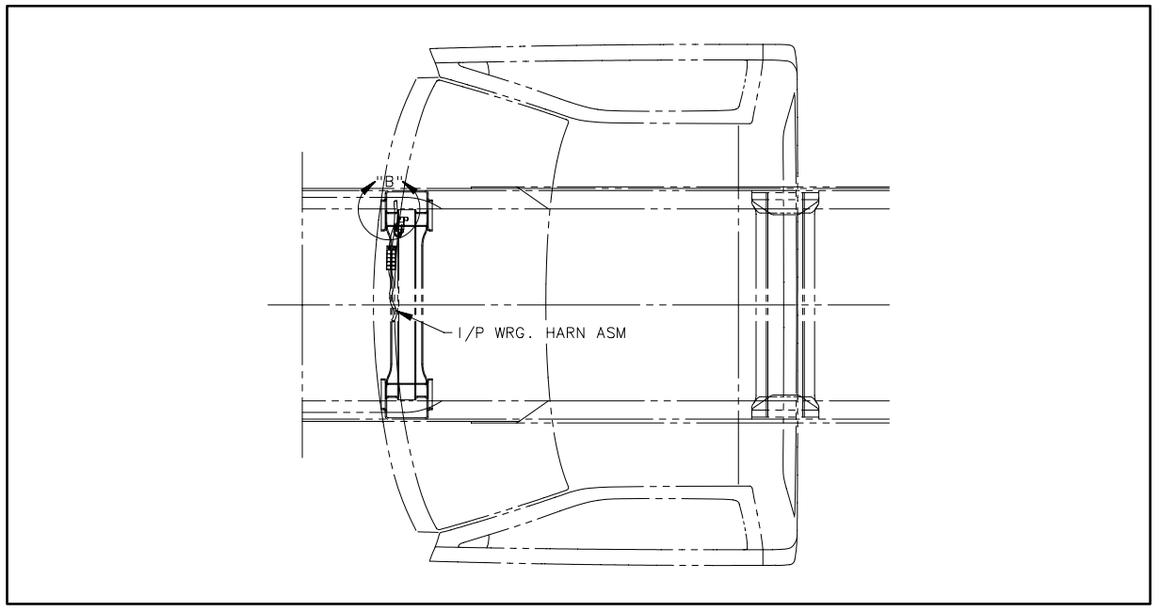
INSTALATION MUST BE REVIEWED FOR PROPER TRAILER CLEARANCES PRIOR TO MOUNTING OF FIFTH WHEEL AS CALCULATED ABOVE

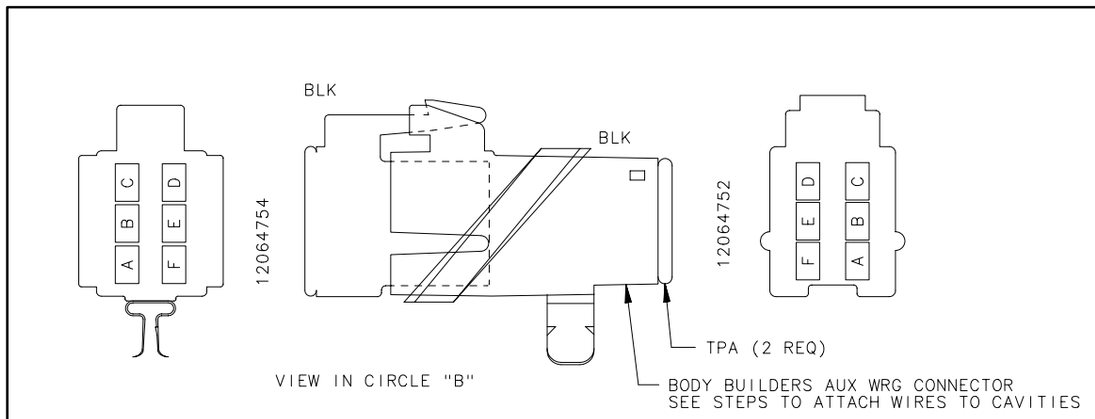


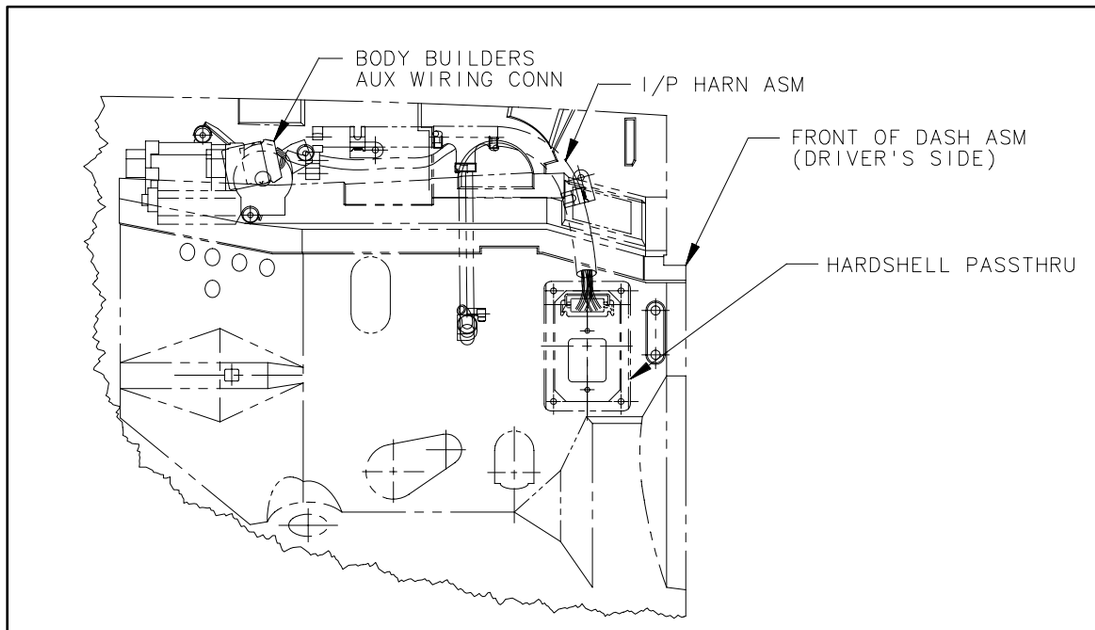
LEGEND:

F1 = FRONT AXLE RATING (GAWR)
F2 = WT OVER FRONT AXLE (CURB)
F1−F2 = PAYLOAD OVER FRONT AXLE
F3 = GVW RATING
F4 = TOTAL CHASSIS WEIGHT (CURB)
F3−F4 = TOTAL PAYLOAD
F5 = WT OVER REAR AXLE (CURB)
WB X (F1−F2) = (F3−F4) X AF (SUM OF MOMENTS AROUND CENTERLINE REAR AXLE)
AF = CENTER OF REAR AXLE OR BOGIE TO CENTER OF KINGPIN
BBC = FRONT OF BUMPER TO BACK OF CAB
CA = BACK OF CAB TO CENTER OF REAR AXLE
CL = CLEARANCE IN 45° TURN, BACK OF CAB TO TRAILER (RECOMMENDED MINIMUM CL IS 6 INCHES)
CT = BACK OF CAB TO TRAILER CLEARANCE (STRAIGHT AHEAD)
KP = FRONT OF TRAILER TO CENTER OF KINGPIN
OAL = OVERALL LENGTH, TRACTOR BUMPER TO TRAILER BUMPER
R = CORNER RADIUS OF TRAILER NOSE
SR = SWING RADIUS, KINGPIN TO CORNER OF TRAILER
TL = TRAILER LENGTH, FRONT OF BODY TO BUMPER
WB = CENTER OF FRONT AXLE TO CENTER OF REAR AXLE

C6/7H000 Auxilliary Pickup Point, Wiring







NOTE: To access auxiliary wiring connector, glove box must be removed.

Cavity	Circuit	Terminal
A	Spare	12052825
B	Spare	12052825
C	Ignition Feed 20A Max	12020117
D	Battery Feed 20A Max	12020117
E	Open	
F	Open	

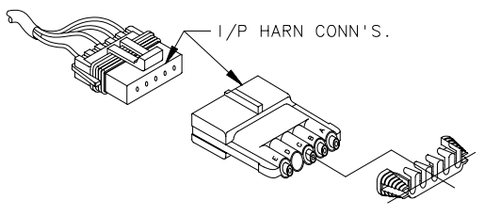
NOTE: All wires to be 3.0MM^2 TXL Cable.

Step 1 - Remove tear tape and disconnect connectors.

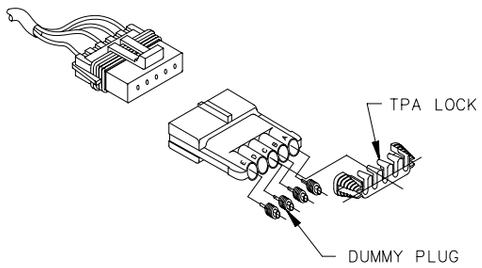
Step 2 - Remove TPA's and insert leads into cavities.

Step 3 - Insert TPA's back and mate connectors.

Step 1 - Disconnect I/P harness connector as shown below.

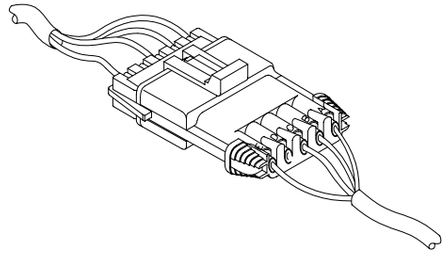


Step 2 - Pull the TPA lock from I/P harness connector and throw away the dummy plug from the cavity as shown below.



Step 3 - Insert the terminal with the seal as shown. (See Note)

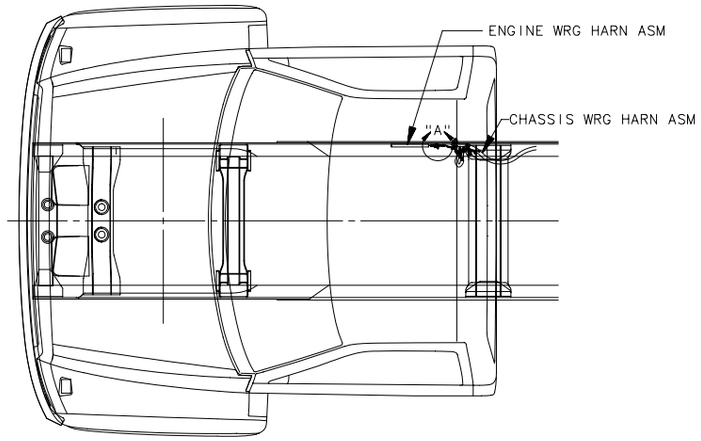
Step 4 - Connect the I/P harness connector and Body Builder's harness connector after inserting the TPA lock on Body Builder's harness connector as shown.



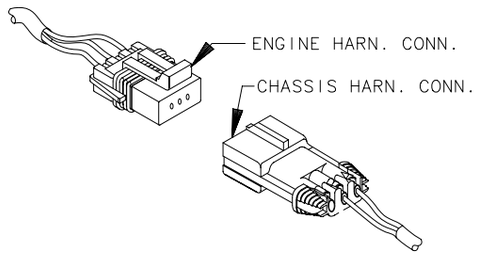
Cavity A: 20A Max Battery Feed
Cavity B: 20A Max Ignition Feed
Cavity C: Spare pass thru wire
Cavity D: Spare pass thru wire

NOTE: All wires are 3.0MM TXL Cable. All terminals to be PED 12048254 or equivalent.

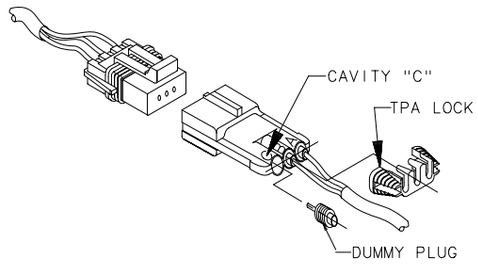
C6/7H000 Auxilliary Pickup Point, Marker Lamp



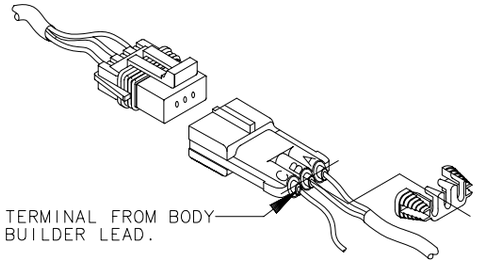
Step 1 - Disconnect engine harness connector and chassis harness connector as shown below.



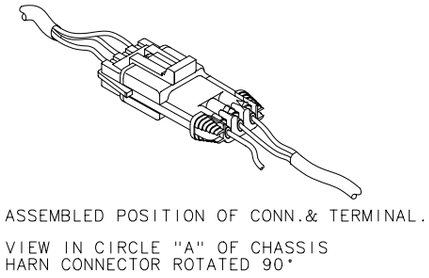
Step 2 - Pull the TPA lock from chassis harness connector and throw away the dummy plug from the cavity "C" as shown below.



Step 3 - Insert the terminal with the seal as shown. (See Note)



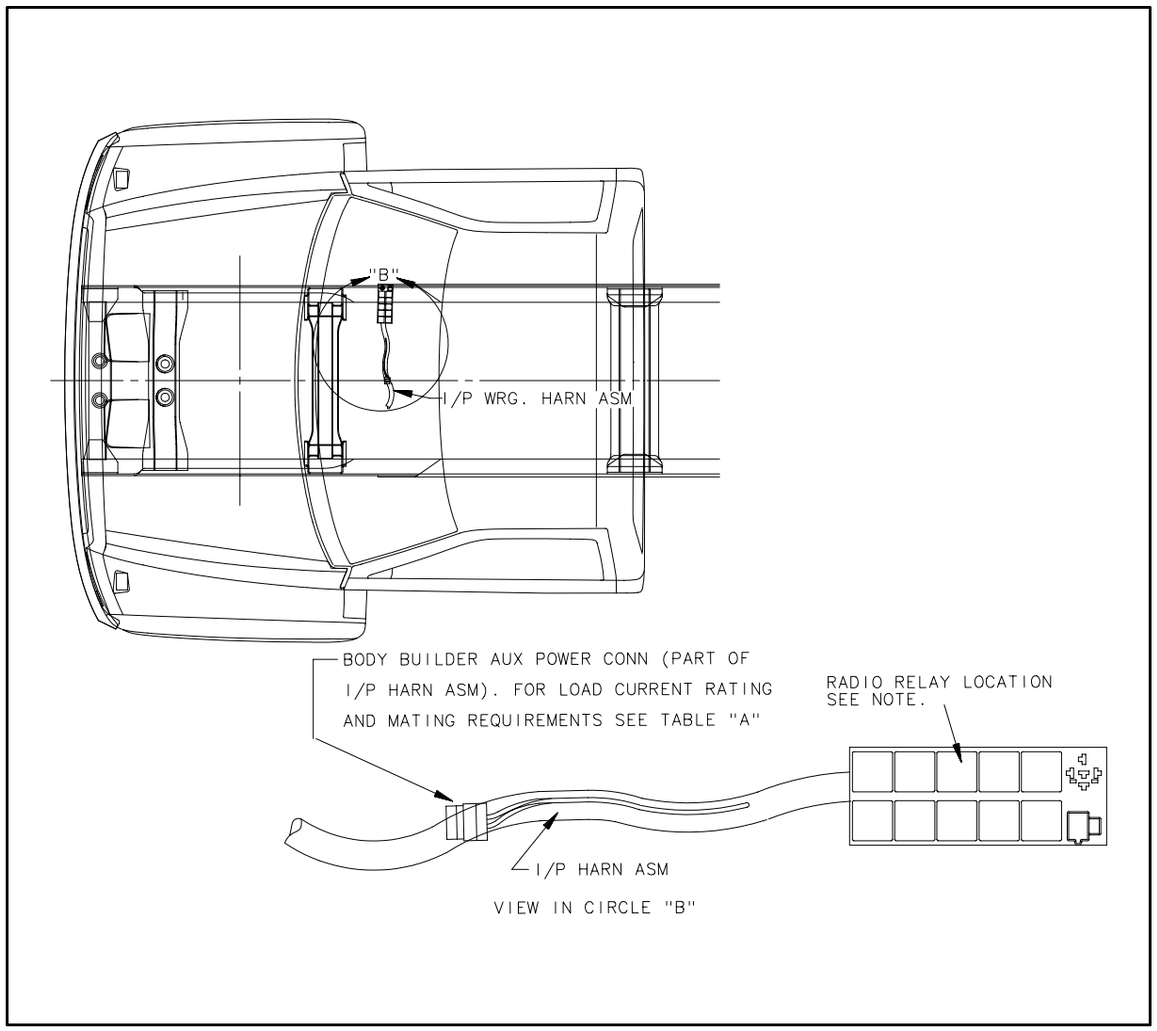
Step 4 - Connect the engine harness connector and chassis harness connector after inserting the TPA lock on chassis harness connector.



NOTE: Recommended Cable: Use cable that meets SAE J-1128 type GPT/GXL or equivalent

Terminal: 12040559 for cable 1.00MM^2 & 2.00MM^2
12048254 for cable 3.00MM^2
Seal: 12015323 for cable 1.00MM^2
12010293 for cable 2.00MM^2 & 3.00MM^2

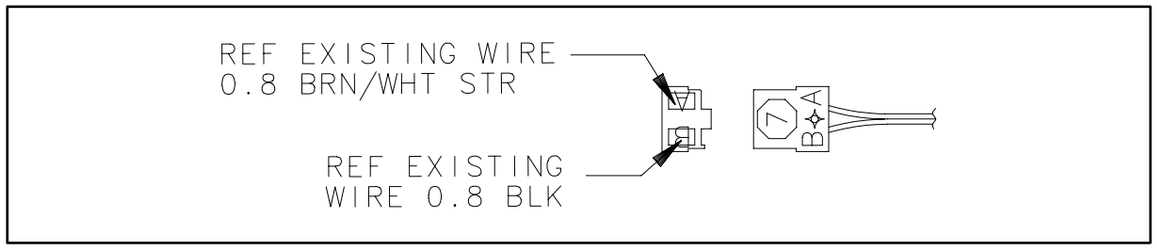
C6/7H000 AUXILLIARY PICKUP POINT, RADIO


"B"
I/P WRG. HARN ASM
BODY BUILDER AUX POWER CONN (PART OF I/P HARN ASM). FOR LOAD CURRENT RATING AND MATING REQUIREMENTS SEE TABLE "A"
RADIO RELAY LOCATION SEE NOTE.
I/P HARN ASM
VIEW IN CIRCLE "B"

NOTE: To access relay center, glove box must be removed. To access power connector, I/P center trim panel must be removed.

TABLE A	
Ref. connector part no. (part of I/P harn. asm.)	Packard Electric ref: 12015199
Mating connector part no. (Body Builder to supply)	Packard Electric ref: 12015271
Terminals required (Body Builder to supply)	12034047-.5 to .8 MM^2 Cable 12020116-1.0 to 2.0 MM^2 Cable
Connector cavity “A”	12V power with ignition switch in “On” or “Accessory” positions
Connector cavity “B”	Ground
Load current rating	Max. 7.0 amps

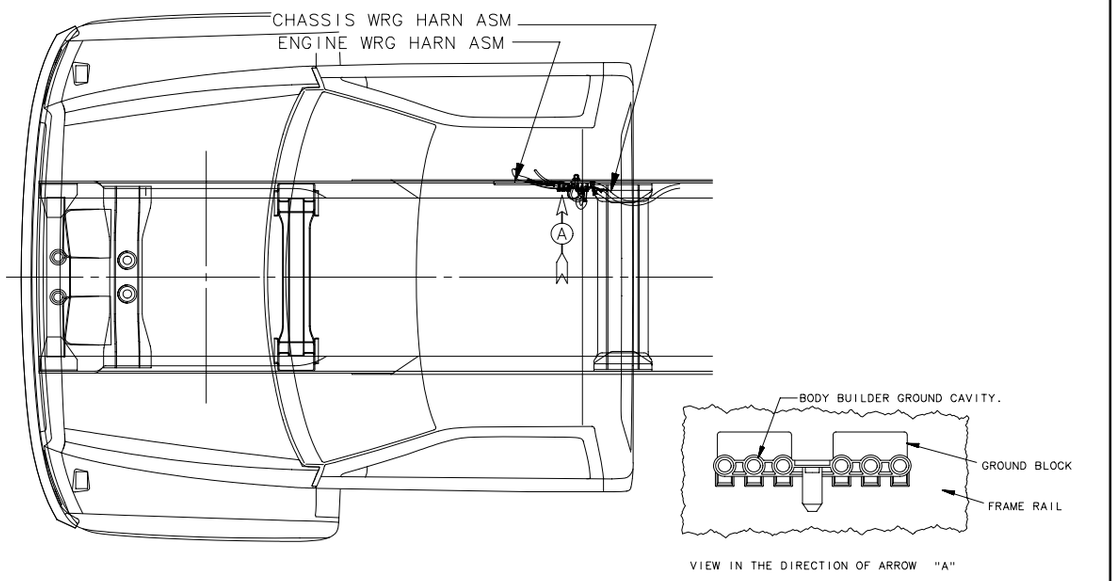
NOTE: Requires addition of GM part no. 25520198 relay or equivalent if vehicle is not equipped with radio or radio provisions.



C6/7H000 Grounding Block

Topkick/Kodiak models utilize a sealed ground block located on frame rail at the right-hand rear of cab. Chassis-mounted circuits for rear lights, fuel pump, two speed axle and engine are collected at this location to a dedicated ground block location to provide a reliable chassis gournd capability.

Also provided in this ground block is a cavity for the purpose of grounding Body Builder attached electrical components such as body marker lamps.



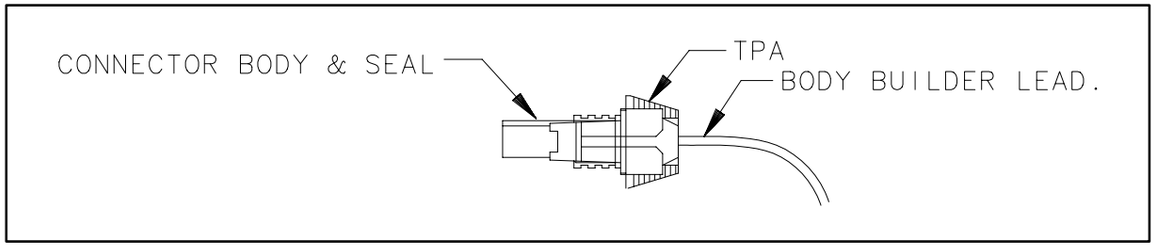
The following Packard Electric parts are required for attaching to the vehicle grounding block.

12065249	TPA (Terminal Position Assurance, also provided)
12065172	Connector (Provided with cavity plug)

The terminal and cable seal are also required and can be selectred from the list below, based on wire size:

Terminal	Cable Seal	Wire Size
12077412	12015323	1.0 mm (16 Gage)
12077412	12010293	2.0 mm (14 Gage)
12077413	12010293	3.0 mm (12 Gage)

Remove closed off connector from grounding block. Remove TPA, remove and discard cavity plug. Insert terminated lead and reinstall TPA. Reinstall connector in gounding block.



Care must be taken in selecting and applying these parts so that the integrity of the ground block is maintained.

Current is rated at 20 AMPS maximum per connection.

Do not configure additional loads to the I/P Rehostat circuit (8 ckt.)

Ordering Information

Electrical diagrams are available from Chevrolet and GMC through service publications. They have contracted the following companies to handle the ordering and shipping of the manuals.

Helm Inc.
P.O. Box 07130
Detroit, Michigan 48207

1 (313) 865-5000 for information and inquiries
1 (800) 782-4356 for credit card orders

Routine orders will be shipped within 10 days of receipt. Rush orders will be accommodated for an additional charge.

Order forms are available upon request and orders can be paid by check or money order, made payable to the mentioned companies. Credit Card orders can be made by phone on the listed toll free phone numbers.